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An Exploration of Students' Experiences of Placement in Computing and Engineering: a Sociocultural Analysis of Learning.

Kirsty Snape

A thesis submitted to the University of Huddersfield in partial fulfilment
of the requirements for the degree of Doctor of Philosophy

The University of Huddersfield

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Volume 1 of 2

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Abstract

Past research dedicated to the study of the undergraduate work placement experience has demonstrated placement participation to be of great benefit to students, contributing to academic improvements, improved generic skills and increased employability. There is however a lack of research which examines the mechanisms underpinning the process of learning that results in these improvements. The academic literature in relation to work placements is under-theorised which, whilst providing valuable data, does not allow for a deep understanding of the phenomenon and makes the wider application of the research more challenging. This research project uses sociocultural notions of learning to explore students' learning experiences during the work placement year drawing upon the work of Lave and Wenger (1991) and Vygotsky (1978). To explore students' experiences of placement, data was collected through use of semi-structured interviews and an interactive Facebook group. To analyse the data, narrative constructions were produced, and a thematic analysis was conducted. The analysis explored issues of identity, the meanings students formed in relation to their placement experience, and the practices perceived to be influential to placement learning. The study findings indicate where learning on placement and in academia enable one another which is a process mediated through the mechanism of a shifting identity. The findings also highlight where the notion of independent learning in higher education contrasts with the inherently collaborative nature of placement participation, and where the ability to navigate complex social dynamics is thus a fundamental skill for enabling placement learning.

Research Journey

During the second year of my undergraduate psychology degree I put myself forward for a research project that in hindsight I believe, transformed my undergraduate experience. The project involved exploring the experiences of law students as they set out to become legal advice practitioners in a university affiliated free legal advice clinic. My role in this project had been to act as a reflective peer mentor to one of the law students, for which I received training in relation to theories of learning and reflective practice. Throughout the project I met with my peer and attempted to help her to reflect upon and grow from her experiences of working in the clinic. Though I had studied developmental psychology in the year prior, participating in the legal advice clinic project had been my first real experience of exploring the psychology of learning in relation to higher education. I became fascinated by the concept of learning through practice and found myself relating to my degree in a much more interested and engaged way than before.

During the course of my participation in the project I had conducted three interviews with my law student counterpart. Using this data, I dedicated my final year dissertation to an exploration of what it meant to learn in the process of becoming an undergraduate legal advice practitioner. In doing so, I was able to further immerse myself in sociocultural theory. As I began to relate these theories to my peer's experience, my ontological position shifted from a passive acceptance of cognitivism to being firmly in favour of socioculturalism. When the time came to decide my PhD research interest, I hoped to explore further the nature of situated learning in relation to higher education. In discussion with my PhD supervisors the idea of exploring placement learning was formed. At that time, I was particularly interested in situated cognition and the importance that Lave and Wenger placed on learning in context. I had expected given the fundamentally situated nature of work-placement participation that this would be an area of the academic literature that was already saturated with theoretical explorations. I was surprised therefore to see how few studies explored the process of learning on placement, and how fewer still had done so based upon sociocultural notions of learning. After reviewing the research in the area, I sought to understand the mechanisms that contributed to the positive learning outcomes associated with placement participation and I knew there was space in the literature for a study that did so. Enacting this aim however has not always been a straightforward endeavour.

My original aims were a work in progress:

1. To investigate the practices within the workplace setting which enable and disable learning

2. To investigate how students perceive placements to aid in their development of key competences.
3. To investigate students' subjective notions of their identity shift post placement.
4. To investigate how work placements are understood to contribute to the university from the perspective of members of the engineering teaching staff.
5. To use sociocultural theory to understand placement participation.

When I look back at my first research aims, I barely recognise them, such has been the extent of my learning journey as I have engaged in the world of academic research. Aim one I recall stemmed from my initial intention to take an ethnographic approach to exploring placement learning. I believed at that time (as I still do) that from my ontological position, where learning is thought to involve a process of meaning making in response to situated experiences of participating in practice, that it makes sense that research exploring learning would explore said meanings and observe said practice. At this early stage, I had conducted research but never really had to design it. I had read research methods text books that modelled ideal methods of research, but it was not until my supervisor drew attention to the impracticalities of my initial choice of method that I realised that though suitable, it was not necessarily feasible. I could not realistically as a student studying for a limited time, with limited funds, arrange to visit multiple students at workplaces scattered around the country. But for a long time I felt unable to move past this notion that a sociocultural study must observe the phenomena of study in context. Only as I continued to engage with theory, and with reading the placement literature to explore the methods by which other researchers had approached the study of placement did I come to truly see the value in a project that only focuses on students' experiences and the meanings they form from them.

I recall, looking at my second aim, hoping to form a competence framework based upon industry benchmarks, from which I could gauge students' perceptions of what they had learned in the course of placement. I knew that this was a research area saturated with a focus on outcomes and yet I still sought to contribute research, which even if only partially, added to them. My logic at the time was that to understand the process of learning, one must first understand what has been learned. Again, with the passage of time and plenty of reading I came to realise the rigidity of my thinking. The research area needed research that focused on the placement journey and not its end results. I could of course explore what students felt they learned along the way, but to explicitly focus (even only partially) on learning outcomes as so many had done before, would be to detract focus from the student's experiences of learning, which were after all what I had truly sought to capture with my research.

I also sought, when I set out to study placement learning, to study staff perceptions, simply because I noticed their absence in the existing literature. I worried with my research that I was contributing to an existing imbalance between a focus on the students and the voices of the other stakeholders. I see now, quite clearly, that staff perceptions of how placements contribute to the university tells us little about the student learning journey and even less about the placement experience. Though it seems obvious to me now as my research has progressed to a cohesive whole that this aim had no place within my study, in the course of conducting my research it took me a long time to come to this realisation. Despite all that I had read, it was only as I began engaging with my participants, hearing the richness of their experiences and the complex ways in which they were able to learn and grow from these experiences that I came to understand that this and solely this needed to be my focus. Anything else would detract from the student voice, which despite a mass of placement research that focused on students, still needed to be heard. My aims shifted accordingly:

1. To apply a sociocultural theoretical framework to the understanding of placement learning, whilst contributing new theory driven knowledge to the work placement literature.
2. To explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.
3. To analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.
4. To explore the emergent practices which serve to enable or disable learning on placement.

In the course of enacting these aims I have come to understand the complexity of the social research process, where circumstances shift and change in ways that cannot be anticipated requiring of the social researcher adaptability and resilience. I talk in my analysis of the transformative potential of participation in practice, this is something through participating in the act of academic research that I have come to understand at a personal level. In the course of my research pursuit, I have found my method shifting in response to ongoing learning and unanticipated events. I have had to adapt to issues with timing and funding and faced barriers in relation to recruitment and access. But in the process of adapting to each of these challenges I have come to learn and appreciate the flexibility and resilience required in the process of becoming a social researcher.

Thesis Overview

The remainder of the thesis is divided into six chapters. Chapter One provides a review of the literature in relation to work placement participation. Included in the review are placement studies which have

been conducted in a range of countries across a variety of subjects. Much of the literature in relation to placement participation is quantitative in nature and the review reflects that. The chapter culminates in a critical argument in relation to the largely atheoretical nature of existing placement research. In Chapter Two I outline Lave and Wenger's (1991) Situation Learning Theory and their subsequent work on Communities of Practice Theory and I outline Vygotsky's (1978) concept of the Zone of Proximal Development. Based upon the two theoretical positions an argument is presented in favour of the application of sociocultural learning theory for understanding placement learning. Chapter Three outlines in depth the method of data collection and analysis that was carried out in the process of exploring learning on placement and included in this discussion is a rationale for each of the methodological decisions made. In Chapter Four narratives of the placement experiences are presented. Six narratives were constructed based upon six separate interviews and each narrative offers an insight into the diversity of the work placement experience. Though the construction of the narratives was implicitly interpretive, no explicit attempts at interpretation are made in this chapter. In Chapter Five the data set as a whole is then analysed using a theoretical thematic analysis underpinned by the theoretical concepts outlined in chapter two. In Chapter Six the limitations of the study are considered, conclusions are made regarding the findings and recommendations are made for further research and practice.

Chapter One – Literature Review

Within this chapter I seek to demonstrate the predominant trends across the research area of work placement learning and to discuss the key findings of existing placement research. This I do with the intention of outlining recent understandings and to provide a rationale for the current research project. Whilst this thesis explores UK sandwich year placements for students in the subjects of computing and engineering, the following review of the literature is inclusive. It overviews studies which have been conducted in a variety of countries and which focus on an array of subjects and placement models, so as to contribute to building a more holistic understanding of the differing ways in which work placements have been conceptualised and approached. But with that said, certain exceptions were made whilst selecting literature for review. These exceptions were based on a subjective judgement of a study's relevance, and were determined on an independent basis, research paper by research paper. Typically, those excluded from review related to clinical, teaching and social work placements, as a significant proportion of these papers were highly specific to experience within those particular subjects and so their relevance for understanding work placements more generally was deemed limited, this was not however always the case, some had more general applications allowing for their inclusion.

This chapter begins with an introduction to the concept of work placements in which I briefly overview some of the more predominant work placement models and demonstrate where these approaches to providing industry experience share similarities and where they diverge. Included in this introduction is an explanation as to how and why work placements were incorporated into the UK undergraduate curriculum and how once incorporated they have increasingly grown in prevalence, but not always in popularity. Whilst explaining the rationale behind the expansion of work placement programmes I draw upon rhetoric centred around student needs and expectations, government policy, industry requirements and global competitiveness. Upon demonstrating why stakeholders elect to invest in placement programmes, I review research which examines whether they can live up to expectations and produce the outcomes they are designed to engender. Much of the existing research I will argue lacks any basis in theory and focuses largely on quantitative measures of the academic and employment outcomes of placement participation. Whilst this is an essential avenue of exploration, research such as this is unable to provide an insight into the mechanisms of learning that contribute to these outcomes. This critique is one which has been echoed in placement research in recent years. In response to increasing calls for theoretically underpinned work-placement research, a limited number of studies exploring the process of learning on placement using sociocultural theories can

now be found in the work placement literature and these studies are discussed at the end of the chapter.

Defining Work Placements

This research project involves students' experiences of their year in industry in what is commonly known as a 'sandwich year placement'. This term is used in reference to where a student spends a year gaining work experience relevant to their degree subject, sandwiched between the second and fourth year of study.

In alignment with my sociocultural allegiances I believe that the provision of a definition and description of the placement model under exploration in placement research is a necessity. As the nature of placements, their structure and design, will impact the way in which students experience and learn from them. A description of the nature of the placement explored is essential for providing context for the reader from which to situate their understandings of the study findings. Yet much of the existing placement research falls short of this expectation. Descriptions of the nature of the placements under scrutiny often lack depth (or are in some cases non-existent). What's more, the use of terminology with reference to placement models in general lacks consistency, further exacerbating these inadequacies.

The terminology applied in reference to the phenomena of work placements is extensive, it includes (but is not limited to): internships, practicums, field/clinical placements, field observations, shadowing (Purdie, Ward, Mcadie & King, 2013), work-based learning (Reeders, 2000), work-integrated learning and cooperative learning/education (Coll et al, 2009). A lack of clarity as to what exactly each of these labels refers has resulted in a general confusion, contradiction and overlap which is problematic for ensuring that the placement under study is appropriately characterised. As placement terminology is not the focus of this research project little space is dedicated to its exploration at present. For those seeking a more comprehensive overview of the placement nomenclature Gardner and Bartkus (2014) provide a useful reference guide. What follows instead is a brief overview of the labels that appear most frequently across the literature and a description of the model to which they most often refer.

Models of Placement

A key term, which appears particularly often in the Australian placement literature, is "work-integrated learning" or "WIL" for short. Purdie et al (2013) state WIL takes many forms including internships, field observations and work placements which would suggest it to be an umbrella term which encompasses a variety of approaches to the provision of placement learning. Likewise,

Abeysekera (2006) suggests the term work integrated learning was coined as a means to encompass the increasingly diverse modes of vocational learning.

“Internship” is another term which frequently appears in the studies conducted in a range of countries, including UK based studies. Internships are structured, supervised, credit-based forms of work experience that provide students with opportunities to apply classroom knowledge in real world practice, they are flexible in relation to what they entail and how long they last often meaning students can participate in multiple internships throughout their higher education experience (Gardner and Bartkus, 2014). Higher education institutions (HEI’s) can either incorporate internships into their programmes or alternatively they can add an internship scheme at the end of the programme (Helyer and Lee, 2014). Gardner and Bartkus (2014) highlight how variances in their nature can mean that their quality can differ dramatically, with some students gaining significant learning opportunities whilst others are set menial tasks. Corrigan (2015) when studying the media industry for example, argued that students’ need for internship experience in a competitive job market combined with the ambiguous nature of what internships should entail made them fertile ground for exploitation. Many internships Corrigan (2015) argues are unpaid, based on menial work and are prone to employees who are indifferent to their intern’s learning experiences. Though caution should be applied in likening internships to sandwich placements, given their differing structures, evidence of power imbalances between incoming students and members of their workplace signals the importance of considering the impact of power as a potentially influential mechanism in the process of learning during placement participation. Chapter two therefore includes a critical discussion examining how Communities of Practice Theory can account for issues of power in explicating the placement learning process.

Finally, “cooperative education” is another commonly occurring label and is particularly prominent in American research. This term most often refers to programmes which involve the formal integration of academic studies with work experiences, and generally entails periods in which work experience and academic studies occur in alternating rotations which often span the three years of undergraduate study (Cedercreutz and Cates, 2010). Within cooperative education programmes, a partnership is formed between the student, employer and educational institution, with the successful completion of both formal classroom work and placement participation being essential for gaining a qualification (Eames and Bell, 2005).

Whilst the above represents but a few of the wide-ranging placement labels it should provide sufficient context for understanding the placement models and terminology discussed throughout the remainder of the thesis. Throughout, where a placement study is under discussion, I will endeavour to use the label the researcher used. Doing so, in addition to providing a brief overview of the model

of placement to which each label most often refers should provide some insight as to the form of placement under investigation (but as the above critique would suggest the reader should always be mindful that inconsistencies and overlaps in terminology persist). Where discussing my own research or placement participation more generally, the terms 'placement' or 'work placement' will be utilised.

Work Placements and the Employability Agenda

Work placements in all their variations over time have become more prevalent in the undergraduate curriculum. Their increased presence is evidence of the fact that higher education institutions are under significant pressure to incorporate more employability strategies into their curriculum. What follows is an account of the nature of these pressures including from whom they emanate and for what reason, which serves to illustrate the way in which work placements have become an important tool for meeting the agendas of various stakeholders.

In the late 1950's, the UK government Minister of Education established the National Council of Technological Awards in a bid to resolve issues of national wealth and economic competitiveness, through the promotion of industrial placements in engineering and technology degrees (Little and Harvey, 2007). Since this time there have been consistent efforts to form strong relationships between higher education and industry across a wider range of subjects (Bullock, Gould, Hejmadi and Lock, 2009). In the late 1990s interest in work placements once again surged culminating in the establishment of National Centre of Work Experience (Little and Harvey, 2007). This renewed interest is attributed to the highly influential government commissioned report - The National Committee of Inquiry into Higher Education (1997) Dearing Report. Within which it was recommended that universities with immediate effect should form links with employers to foster a greater number of work experience opportunities for students in a range of settings, regardless of whether these experiences be structured or informal, paid or unpaid. Undergraduate programmes, they suggested should allow students to become familiar with work and should provide opportunities for students to reflect upon these experiences and to build an understanding of how they might relate to future development. This is a message which has been reiterated numerous times in subsequent reports including: The Department for Education and Skills White Paper (2003), The DBIS (2009) Higher Ambitions Report and DBIS Wilson Review (2012). Each to varying degrees highlight the value of placements for strengthening the position of Britain's workforce in the global economy, enhancing student employability and improving students' knowledge and transferable skills to produce an appropriately skilled workforce. Driven by the pervasiveness of policy advocating work experience opportunities within the UK and in many other developed countries, work placements are increasingly

viewed as an integral aspect of the undergraduate learning experience (Bullock, Hemadji and Lock, 2012).

Pressure to contribute to student employability however emanates from numerous other sources, including graduate employers, many of whom for a long time have been dissatisfied with the work-readiness of prospective recruits (Wilton, 2012). Traditionally across the more vocational disciplines, where universities have tended to focus on teaching theoretical content, the majority of the teaching of professional practical skills has been allocated to the graduate employers who were in large part expected to train graduates on the job. Over time however, questions have been raised regarding whether graduates should enter the workplace ready to work (Sheldon & Thornwaite, 2005) and universities have thus begun to face criticism for merely providing students with a credential, the influence of which is in decline as the number of graduates continues to rise (Alpert, Heany and Kuhn, 2009). This decline in the status of academic credentials, has caused employers to place an increased importance on personal attributes in addition to a wider range of performative and organisation abilities (Brown and Hesketh, 2004). Thus, in addition to meeting government demands, HEI's must also cooperate with employers who expect highly skilled, knowledgeable graduates who are ready to work (Medhat, 2003).

Students are an additional source of pressure, with their own expectations of what should come of their higher education experience. For undergraduates, education in general is increasingly being viewed as an investment (Abseykera, 2006). A combination of declining graduate vacancies (Banga & Lancaster, 2013), a rapidly expanding student number and a challenging labour market post-2007 recession, means that graduates face stiff competition when seeking employment (Brookes and Youngson, 2014). Many new graduates have difficulty obtaining graduate-level work and are finding it impossible to break into their desired sector (Helyer and Lee, 2014). Issues of graduate employability are therefore of great importance to students, particularly given the level of debt many accrue whilst financing their studies (Gomez, Lush and Clements, 2004). Sandwich placements and alternative forms of undergraduate work experience are increasingly thought of as an important means to develop graduate employability potential (Clarke and Zukas, 2016). Whilst a high percentage of recruiting employers enquire about students' educational experiences, many believe vital skills such as leadership and teamwork are not attainable solely from classroom learning, and thus rely upon demonstrations of work experience to identify the presence of these skills (Bar and McNeilly, 2002). The provision of work placement experiences should then, in theory, allow students the opportunity to build upon their employability by enabling them as graduates to distinguish themselves from their competition by using what they have learned through work placement experiences to stand out to graduate employers (Heyler & Lee, 2014).

Though it is evident that HEI's must meet the expectations of numerous stakeholders, placements also have the potential to be important and beneficial for the HEI's themselves. Attempts to improve graduate employability are in part a reflection of each university's concerns with their own future enrolments which can greatly impact upon their own funding, productivity and competitiveness (Jackson, 2014). HEI's frequently monitor factors such as academic achievement and graduate employment rates as part of their quality assurance procedures and the results of these measures have a significant impact on the reputation of the institution (Bullock et al, 2009) which is vital for increasing student numbers (Lawrence and Sharma, 2002).

Universities in their ongoing commitment to the employability agenda have adopted a range of employability strategies through the introduction of new courses, the modification of existing courses and the expansion of work experience opportunities (Cranmer, 2006). Given the value and investment each stakeholder places in the provision of work placements, it might be assumed that students in a position to accept a work-placement opportunity would do so without a great deal of hesitation. The reality however is much more complex. Numerous factors influence students' decisions as to whether to embark upon a sandwich placement year. The factors impacting these decisions, in addition to those determining whether the students attempting to gain a placement are successful in their pursuit, are outlined below following a brief overview of current trends in relation to placement uptake.

As will be later evidenced, a significant amount of outcome focused placement research has demonstrated that placement programmes can be effective in generating positive changes. Yet for a number of students there is a level of resistance when it comes to committing to a year of work. For a significant time, the relative number of students selecting a sandwich option nationally was in a steady year-on-year decline (E4E, 2011). However, in recent years sandwich placements have increased in popularity. In the academic year 2014-2015 a total of 153,535 undergraduate students were enrolled on a sandwich course, a notable increase from the 113,795 enrolled on a sandwich course in 2009-2010 despite a decrease over that same period in the total number of undergraduates (Wickware, 2016). As to whether trends such as these are echoed internationally is hard to ascertain, the differences in the definition and nature of placements makes it difficult to contextualise placements in an international setting (Green, 2011). Past research has however indicated that whilst 55% of all European graduates participated in some form of placement period, with countries such as Finland, Germany and the Netherlands reporting figures as high as 80%, the number for the UK was comparatively low at 29% (Arthur and Little, 2010). A more recent comparison would however be preferable.

Thus, whilst placement programmes have become more frequent and varied, the level of student uptake does not appear to have followed such a consistent trend, their popularity amongst students it would appear waxes and wanes. Given the level of investment afforded to placement programmes and the high expectations of the outcomes of these investments, a more consistent positive trend would be desirable. To ensure this goal is met with future cohorts requires the identification of factors which either contribute to or dissuade students from choosing to embark upon a placement. Interestingly it would appear that little research thus far has been dedicated to this endeavour, despite the clear potential its findings have for designing interventions in the marketing and implementation of future placement programmes. The following is an overview of the findings from the limited number of studies available. These are typically based upon student self-report or HEI staff perceptions and examine the motivations and reasons behind students' participation or non-participation in work placement opportunities.

Participation Motivations

Experience

A significant number of students choose a placement course as a means of gaining industry experience which will enable them to apply theoretical knowledge in a practical environment in tandem with developing core competences (Little and Harvey, 2006; Balta, Coughlan and Hobson, 2012). Placements are viewed as a means to supplement learning in areas where universities' practical learning provision is considered unsatisfactory (Hejmadi, Bullock, Gould and Lock, 2012).

Career Direction

Placement years are persuasive due to their perceived value for informing post-graduation career decisions and enhancing employment prospects (Hejmadi et al, 2012). For some students the placement year acts as a kind of test which allows them to determine if they are happy in a role or even in their chosen industry without a long-term commitment (Little & Harvey, 2006).

Additional incentives for participating in a placement year include salary (Morgan, 2006), convenience – if the placement does not require relocation (Balta, Coughlan and Hobson, 2012) and the chance to have a break from academia (Little and Harvey, 2006).

Non-Participation Motivations

Lack of Information

Bullock et al (2009) suggest based on interviews with non-placement students that placement opportunities tend to be rejected based either upon well-informed reasons or on uncertainty and a lack of information. For those who do not receive adequate information there is a level of uncertainty regarding the nature of the demands that are expected during their placement, with too little information offered regarding companies, available roles and past students' experiences. Students can in addition have unrealistic expectations of industry with many expecting to be placed in large multi-national firms despite high competition for positions and a limited number of opportunities (Balta, Coughlan and Hobson, 2012). Work placement options thus do not always match the ambitions of students, leading them to feel there is a lack of choice (Bullock et al, 2009; Banga and Lancaster, 2013).

Transitional and Confidence Issues

Students can feel as though the work placement year has come too soon after their original transition to university and with it comes essential decisions regarding housing and relationships which have to be made well in advance of any placement confirmation (Hejmadi et al, 2012; Balta, Coughlan and Hobson, 2012). In some cases, the promotion of the work placement year does not occur until the second year leaving some students suddenly overwhelmed (Morgan, 2006). With students already having to cope with the demands of their degree, the addition of planning a transition to placement and all that it entails is a source of anxiety (Lock, Bullock, Gould and Hejmadi, 2009). Many students find their applications are rejected due to poor academic performance, a lack of work experience or a lack of core competencies (Balta, Coughlan and Hobson, 2012) and for some the prospect of facing rejection in these areas is enough to prevent them from even attempting to apply (Banga and Lancaster, 2013).

Completion of Studies

Mixed method data has demonstrated that for a large percentage of non-placement students, the opportunity to partake in a placement is rejected in favour of completing studies without a break. Bullock et al (2009) surveyed 136 non-placement students about why they chose not to embark on a placement, finding 80% chose not to go in favour uninterrupted study. Follow up focus groups suggested a clear career path underpinned this decision as students were eager to pursue their career sooner. Balta, Coughlan and Hobson (2012) found survey respondents felt the taxing workload of the second year to be a further deterrent prompting many to choose not to spend the time and effort on applications in favour of achieving an upper-class degree. Follow up focus group data suggested this was influenced by concerns around the time required to prepare CVs, apply for placements and attend interviews.

Career Focus

Some students feel confident that they already know their career direction without gaining placement experience, for others, placements are not felt to be worthwhile for impacting career prospects (Hejmadi et al, 2012). Crebert, Bates, Bell, Patrick and Cagnollini (2004) found of 664 placement students they surveyed, 74% believed the skills developed on placement contributed to their career advancement. However, often students believe they already have sufficient and relevant work experience without a placement (Morgan, 2006; Bullock et al, 2009; Hejmadi et al, 2012). Additionally, the lack of credit awarded for a placement year can hinder enthusiasm leading some to feel a shorter summer placement will be of more benefit (Bullock et al, 2009).

Location

The location of placement employers can act as a barrier for students wanting to participate on a placement for numerous reasons. Typically, less populated areas tend to have fewer employers with available placement positions (Banga & Lancaster, 2013). In highly competitive areas students have a harder time obtaining a placement (Balta, Coughlan and Hobson, 2012) and placements which are geographically dispersed can cause travel inconveniences which can be discouraging (Morgan, 2006; Balta, Coughlan and Hobson, 2012).

Financial Considerations

For some, part-time work is necessary to fund studies which can deter placement applications (Morgan, 2006). For others tuition fees tied to the work-placement year can be problematic – Bullock et al (2009) found for instance that almost all respondents in a survey of 145 students (regardless of whether they had completed a placement or not) strongly expressed their indignation about tuition fees tied to the placement year.

The Influence of Others

The perceived opinions of personal tutors and individual lecturers can be highly influential to a student's decision as to whether to embark on placement. Encouragement or a lack thereof can impact whether students believe a placement will be worthwhile (Bullock et al, 2009; Hejmadi et al, 2012).

Inability to Obtain a Placement

For some a lack of strategy during the job search can limit opportunities to obtain a placement. Placement students tend to begin the recruitment process sooner than non-placement students and in a more focused, strategic and selective manner based upon a clearer understanding of the industry

in which they wish to work (Brookes and Youngson, 2014). Non-placement students in comparison reportedly lack confidence in their ability to gain employment resulting in a larger volume of less selective applications and an increasingly reduced resilience in the face of rejections (Brookes and Youngson, 2014). Non-placement students in addition are less likely to make use of University support services which are geared towards enabling students to maximise their employment potential (Brookes and Youngson, 2014).

Whilst the volume of research examining placement uptake is slight, its review sheds light on some of the factors (at both individual and more distal levels) that contribute to determining participation or non-participation. Whilst students have strong incentives for electing to undertake a year in industry including hands on experience, a clarified career direction and remuneration, so too are there compelling reasons for students not to participate, such as the ability to complete studies without delay and to focus upon studies without added pressure or distraction. Non-placement students have notably stated that they had few regrets in relation to their decision in part due to mixed reviews from their placement peers (Bullock et al, 2009). Thus, to some extent the justification of whether to participate comes down to individual preference based on perceptions of whether it would be more personally beneficial to embark on a placement or to bypass it.

However, for some, the ability to choose to undertake a placement year is dictated by influences outside of their own control. The identification of issues in relation to location, relationships and finances indicates a lack of equality of opportunity for some students, with certain personal circumstances dictating little choice but to decline the opportunity to work in industry. It has in addition been noted that international students are much less likely to participate in a placement (Mandiliras, 2004). Reasons for this are unknown but suggestions include language barriers or the hesitance of employers to employ international students due to difficulties in rehiring them post-graduation. In addition, as demonstrated by Bullock et al (2009), for some students many of the reasons for choosing to reject a placement opportunity are unfounded and potentially avoidable. For some, a lack of confidence in relation to numerous aspects of placement participation was a significant deterrent, while for others a lack of information meant that they felt unable to make an informed decision. More must therefore be done to ensure that those who are willing are given every opportunity to benefit from a placement experience. Bullock et al (2009) recommended that non-participation be combated via strategies including enabling students to reflect on risks versus benefits of participation, in addition to the provision of advice for coping mechanisms during placement preparation and participation. The nature of companies and job roles, they suggest, should also be made clear to students wherever possible. In addition, they state that an increased understanding of non-formal learning on the part of the lecturers may increase their own commitment which would in

turn implicitly transmit to students that work placements are worthwhile. Indeed, it would appear that whilst many students enter university with pre-planned intentions to complete a sandwich placement, for some the decision comes later following workshops in which they are convinced of their benefits (Brookes and Youngson, 2014). For those facing barriers due to personal circumstances, strategies such as the provision of short placement opportunities have in the past been demonstrated to be of value for students with part-time jobs and dependent families (Curtis, et al, 2009) which may enable some students to regain a little control over their capacity to improve their employability and participate in an industry experience where they might otherwise be unable.

The literature findings reviewed thus far have demonstrated the expectations of various stakeholders in relation to work-placement programmes, and how certain expectations can contribute to students' decisions as to whether to participate in a placement. What is essential now however is to determine whether these expectations are being met.

Outcome Focused Research

The body of research dedicated to examining the impact of placement participation on outcomes is vast, but the majority focuses on the impact for the students specifically. In line with the literature in the area, the following discussion concentrates on the benefits and drawbacks of placement participation for students. Typically, research findings in this area can be divided into three categories; generic skills and attributes, academic development, and employment outcomes. The development of generic skills alongside academic development have been described as proximal impacts of the placement experience which in turn could contribute to the more distal benefit of improved employment outcomes and ultimately a sustained, successful career (Hu, Abdeer and Yusman, 2009).

Generic Skills and Attributes

Undergraduate placement experiences are intended to contribute to the personal and professional development of students and to enhance their employment prospects by preparing them for the workplace (Bullock et al, 2012). It has therefore been argued that a key purpose of these programmes is to provide graduates with the comprehensive skill set that employers desire, which higher education institutions struggle to deliver (Coll et al, 2009). It has been suggested that employers have for a long time been dissatisfied with the quality of recent graduates, yet Mason, Williams, Cranmer and Guile (2003) have reported that there is little consensus between employers as to the extent of work-readiness that they expect graduates to possess. This has led some to contest whether employer dissatisfaction truly represents a skills gap (Wilton, 2012). Crebert, Bates, Bell, Patrick and Cragnolini (2004) suggest that where employer expectations are explored, skills which are consistently reported

as desirable include the abilities of students to: communicate, think critically, problem-solve and to be a confident team player. In general, they desire students who are adaptable and transformative and able to both initiate and respond to change. In their aim to hire graduates who can display these skills and attributes, employers are increasingly employing recruitment methods which test for both technical knowledge and an array of generic skills (Hall, Higson and Bullivant, 2009).

There is evidence to suggest that these generic skills can be fostered through work placement participation. Evidence of improved communication has been indicated across numerous studies (Reddy and Moores, 2006; Little and Harvey, 2007; Bullock et al, 2009; Hall, Higson and Bullivant, 2009). A finding which is of particular importance as employers' dissatisfaction with graduate skills has been suggested to be strongest with respect to students lack of oral and written communication abilities (Blackwell, Bowes, Harvey, Hesketh and Knight, 2001). Crebert et al (2004) state that communication skills lend themselves to development at university, but students must be made aware of their importance and be offered opportunities to practice them throughout their degree including in authentic workplace settings.

Improved confidence has been suggested to stem from performing placement based tasks (Little and Harvey, 2007) and the process of reflecting on placement experiences which can enable students to combat feelings of powerlessness by allowing them to acknowledge their mistakes, strengths and weaknesses which they can then 'make their own' (Paliadelis and Wood, 2016). In Jackson's (2016) qualitative exploration of how work placements develop students' pre-professional identity, confidence was reported to have been boosted as a result of: gaining an insight into industry and the workplace which enabled students to relate to their chosen profession, having the opportunity to establish professional networks from which to draw support and gain knowledge, experiences of gaining the respect of colleagues and opportunities to participate in practice to build upon technical knowledge.

From semi-structured interviews with post-placement students, Little and Harvey (2007) found students felt their critical thinking had improved following placement participation. They reportedly believed themselves to be better able to question and challenge the information they were given in lectures. Further, the students also suggested they were better equipped to receive criticism. It is difficult to ascertain the nature by which placement contributed to this progression however without the application of a theoretical model from which to examine the experience.

Students often elect to participate on a placement as they perceive it to be an opportunity to develop core competences such as teamwork (Balta, Coughlan and Hobson, 2012). Improvements in placement students' abilities to work within a team were reported across numerous studies, but

experiences of teamwork frequently differed. Little and Harvey (2007) found that whilst almost all students felt that they benefitted from experiences of team working, some were concerned about their own input and the way it was perceived by their colleagues. For others there was a sense of comradeship and with it a perceived need to put in extra hours for the good of the team. For some students, teamwork on placement was a pleasant contrast to university teamwork experiences. Coll et al (2009) suggest that the ability to work in a team is a necessary skill both on and off campus.

Crebert, Bates, Bell, Patrick and Cragolini (2004) found from graduates' survey responses that interactive group work at university was considered of great importance in enabling the development of a range of other generic skills and abilities. Yet not all graduates were confident in their abilities to work in a team at the beginning of their placement, many were critical of how aspects of teamwork were not given enough attention in the academic context. This led to the suggestion that the prevailing culture of learning at university, from which personal achievement, ambition, goals and rewards are valued, is somewhat at odds with workplace learning where team achievement, goals and results are vital to the success of the organisation as a whole. Much of the generic skills development reported in this study was dependent on the collaborative learning students were able to experience on placement, thus the researchers suggest that students must be offered a higher level of group work and teamwork opportunities whilst at university in preparation for the transition to the workplace. Though this is an interesting finding, it is not possible to ascertain from survey data such as this, the process that underpins why collaboration is so influential for learning on placement.

Based upon survey data with placement students Crebert et al (2004) also found support to suggest work placements contribute to adaptability, suggesting there is a relationship between a graduates' participation on placement and the ease with which they transition from university to employment. One student they noted, felt that their placement had provided them with a framework to develop the skills required for adapting to different environments. The study findings further suggested placement experiences offer students valuable preparation for addressing the difficult situations that a new graduate can face in employment.

Academic Outcomes

Post-placement academic improvements have been indicated from quantitative data across a range of subjects (Blair & Milea 2004; Brooks, 2012; Brooks and Youngson, 2014; Hejmadi et al, 2012), for both males and females (Gomez, Lush and Clements, 2004; Foster et al, 2011). Using a university's electronic record system Reddy and Moores (2012) were able to gather anonymous data for over 6000 students, which included their degree programme and classification, their second and final year mark,

gender, age, ethnicity, award year and placement status. Using a range of quantitative measures, they found students of different ethnicities, genders, and socioeconomic backgrounds all received similar academic benefits from their placement year. Crawford and Wang (2016) also found a significant association between placement participation and final year marks for both UK and international students but found the academic increase between the second and final year to be significantly greater for UK students. For this reason, the researchers recommended that universities must find ways of enabling international students to improve knowledge transfer from the workplace to university.

A limited number of studies have however also found no academic benefits to placements. Bullock et al (2009) found that for bioscience students the post-placement differential increased, whereas for engineering students it narrowed, value added could not therefore be claimed for engineers. Duignan (2002) also found no statistically significant difference in the final grades of placement and non-placement students. Duignan argued however that this finding did not mean that students did not learn from the experience, but more likely that they failed to exploit the full learning potential of the placement in relation to the attributes valued and evaluated in higher education.

Based on semi-structured interviews with placement students Little and Harvey (2007) argue placement participation results in improvements to personal organisation. Participants believed this to be a consequence of gaining the opportunity to take on responsibility and lead specific tasks as part of a wider team. When comparing survey data from degree-integrated placement students and non-placement students Bullock et al (2012) in addition, found a significant improvement in reported time-management for placement students. Cook, Parker and Pettijohn (2004) also using survey data, suggested students felt they were better able to relate to their classroom learning post-placement and Curtis et al (2009) found when surveying students who had returned from a short politics placement that more than three-quarters felt their subject knowledge had improved. Placements have also been suggested to positively impact students' approaches to learning by enabling them to become more actively engaged in their learning (Little and Harvey, 2007) and by improving their motivation to study (Hejmadi et al, 2012). Improvements in these skills and attitudes should arguably enable more competent engagement with the valued practices of the academic community, ultimately leading to the academic improvements reported in the comparative quantitative studies outlined earlier.

Employment Outcomes

In a survey of the heads of recruitment at 900 British firms, Bennet, Eagle, Mousley and Ali-Choudhury (2008) found the majority of respondents felt evidence of work placement experience was substantially more important for employability than degree class and type of university attended. Blair and Milea (2004) in addition demonstrated the potential monetary value of placement experience with cooperative education students reportedly being offered a higher salary, worth on average \$6,302 more than that offered to those without cooperative education experience. Brooks and Youngson (2012) likewise found placement students to be more likely to gain a higher starting salary and attributed this to placement students' increased likelihood of gaining an appropriate graduate level role. Based on HESA first destination returns data Bowes and Harvey (2000) found there to be a correlation between graduates who have work experience and early employability. Sandwich students in the early part of their careers were advantaged in the labour market, however the extent to which they were advantaged varied as a feature of their subject area with placement students in some subjects (science and languages) receiving a less significant advantage than others. In all areas except engineering, thick sandwich placement graduates had greater labour market success than thin sandwich placement graduates. Sandwich students were also marginally less likely to be unemployed than their non-sandwich placement counterparts. HESA return data could not however be used to explain why students in some subjects were more likely to receive an advantage from placement participation than in others. Brooks (2012) similarly used The Destinations of Leavers in Higher Education survey to assess the employability benefit of placement but also used qualitative data to offer further insights. Brookes (2012) demonstrated placement students to be more likely in employment than non-placement students and showed 25% of graduates returned to their placement workplace, Brooks thus suggested that employers may feel that by rehiring past placement students they are lowering their risk as the graduates will have already proved themselves capable. Using data from an open-ended online questionnaire Brooks found final year students who had taken a placement felt more confident in their ability to gain employment and were proactively looking for experience. Non-placement final years were in contrast more pessimistic about their employment opportunities and appeared to be less strategic in their job search. Placement students felt that they had developed the skills necessary for success in the workplace including an awareness of how to work within a corporate setting, work ethic, teamwork and confidence. Based upon their practical experience they felt better able to demonstrate their achievements to employers and could better explain why they would make a valuable contribution to the team.

The significant body of placement literature focusing on student outcomes has identified a range of benefits to be accrued by those who elect to participate on placement. As evidenced however, study findings have in some instances been inconsistent, suggesting that at least for some students,

placements do not always lead to positive learning and development outcomes. The incorporation of placement into the curriculum is not in itself enough to guarantee positive effects, the potential impact of the internship is in part influenced by how well the programme is designed and implemented (Kettis, Ring, Gustavsson and Wallman, 2013). Consequently, a number of researchers have sought to look beyond simply measuring the impact of placement, to explore the aspects of placement design and implementation which contribute to these outcomes. In doing so, suggestions for best practice and a scholarly approach to placement have been developed.

Placement Design and Implementation

Abeysekera (2006) suggested with regard to WIL programme design that the content of the curriculum should more explicitly embrace employability skills, reflecting students' earlier suggestions that a greater emphasis on generic skills use in academia would be helpful in the transition to placement. Employers Abeysekera argued, should offer opportunities for inductions, supervisions and mentoring as well as providing students with opportunities to learn and apply their skills. Further, it was argued that employers should strategically rotate students in order to offer different opportunities for group work with different members of staff and to challenge students to re-examine that which they may otherwise take for granted.

Cleak, Roulston and Vredugdenhil (2016) provide support for Abeysekera's assertion that opportunities for supervision and mentoring are necessary elements of the placement experience. Surveying students studying social work, Cleak et al found overall satisfaction with the practice learning placement experience to be positively associated with opportunities for engagement in supervised learning activities with on-site supervisors; designated members of staff who are largely responsible for placement management, ongoing supervision and formative feedback. Similarly, Juznic and Pymm (2010) found Slovenian students to report disappointment with their placement, resulting in part from poor supervision. Dissatisfied students suggested that their tutor had been either too busy or ill-prepared.

Discrepancies have however been identified between students and their workplace supervisors in relation to underlying expectations surrounding the nature of the supervisory relationship. Daugherty (2011) using open-ended questionnaires sent to placement students and on-site supervisors explored the characteristics felt to be important for a positive placement experience. The supervisory relationship emerged as being an important influence on overall placement perceptions, but expectations of this relationship were found to differ among the two stakeholders. Students for example were found to desire training whereas supervisors felt more comfortable simply offering workplace exposure. Based upon her study findings, Daugherty made a series of recommendations. It

was recommended that students be told of the importance of initiative and interpersonal skills, to encourage them to be assertive enough to seek good quality assignments themselves. It was also recommended that site supervisors be told in writing their role and responsibility as a mentor which could then be reinforced through phone conversations and site visits. Finally, Daugherty recommended, site supervisors be made aware of the role of the internship within the curriculum to enhance their awareness of the educational component of the experience.

Though the above study findings highlight the importance of the supervisory relationship and have resulted in recommendations for its improvement, it is not possible to discern from this, the reasons underpinning why these relationships are important to students, nor how the dynamics of the relationship are influential to the placement learning process. Spouse (2001) was able to offer a greater insight into the placement student-supervisor relationship by applying sociocultural theories of learning to its exploration, these theories included Lave and Wenger's situated cognition and Vygotsky's (1978) concept of the zone of proximal development. Based on ethnographic data collected with nursing students, Spouse argued that as novice professionals, students arrive at their placement with relevant theoretical knowledge but a lack of understanding as to how it applies in practice. Students thus require the help of an experienced practitioner to learn how their knowledge should be used. Where the nursing students received support from their placement supervisor and were able to form strong relationships built on trust, they were to settle into their placement quicker. The confidence boost they experienced from their positive supervisory relationships meant they were more likely to interact with other team members and participate in activities. Where there was an absence of this relationship however, students struggled to participate in practice, gain access to their colleagues' professional knowledge, and engage with their environment from an educational perspective. These students would cling to relationships with singular members of staff, and constantly seek the permission of others. They would often repeat the same overly simple tasks and would hide away, thus alienating themselves. As such the students found their professional development was stunted.

Coll et al (2009) looked beyond the supervisory relationship to explore design issues in relation to placement pedagogy. In a cooperative education programme in New Zealand, Coll et al found no consistent mechanism by which placement coordinators or off-campus supervisors employed pedagogies designed to foster learning and knowledge integration. Learning through WIL, they found, occurred by means of legitimate peripheral participation whereby students worked alongside professionals in an apprentice model of learning. Though knowledge integration was not facilitated explicitly, it was indirectly fostered, principally by means of reflection and review such as through use of reflective journals and post-placement assignments. In order to more explicitly foster the process

of learning and knowledge integration through work integrated learning Coll et al recommended a range of techniques. They first recommended that programme leaders set the integration of knowledge as an explicit learning objective and develop specific pedagogies and activities to measure this integration. They further recommend students be supported to reflect upon their learning throughout the entirety of their experience before, during and after. To do so they suggest the application of reflective models and the use of software such as Moodle™ which can be used to facilitate online journaling. In addition, they recommend academic practitioners work with workplace supervisors to develop formal pedagogies to offer more structure to ad hoc workplace learning.

Also recognising that placements need to be better interconnected with the degree, Curtis et al (2009 p64) designed a short politics placement programme in which the placement was “fully integrated into the curriculum”. By this the researchers were referring to the fact that the placement not only ran alongside the students studies, but that learning on level two modules was incorporated into placement, which involved negotiations with providers so that placement activities were as closely tied to the outcomes of the modules as possible. This, the researchers argued offered a meaningful experience that aided in the development of higher order skills.

Kettis et al (2013) echo the sentiment outlined above, arguing that the placement experience must be tightly knit into the undergraduate curriculum. Auburn (2007) meanwhile, has demonstrated that students have returned from placement feeling as though they have developed knowledge and skills from their experience which could be of value for the final year of their studies, yet simultaneously they have felt there to exist a disconnect between their practical placement experience and their academic studies. This they attributed in part to the lack of a provision of opportunities to relate the two. Whether it is necessary to design and implement practices which focus on the integration of knowledge between the academic and workplace context, is ultimately a question of how work placements should be theorised. Anderson and Novakovic (2017) question whether it should be deemed as additional or integral to the educational experience. The answer to this question, they suggest, will have implications for the way in which educators should prepare students for the return to study. The way this transition will be managed Auburn (2007) argues impacts the opportunities students have to integrate their learning as well as “reflect upon, identify and consolidate the range of skills encountered” (p120). This notion of theorising the placement model will be returned to later in chapters five and six.

By looking beyond placement outcomes to explore the elements of placement design and implementation identified as useful in engendering learning and development, significant contributions have been made to our understanding of best practice for the delivery of placement

opportunities. Further contributions to the betterment of these programmes however will require an approach to the exploration of the student placement experience that is based upon theorised notions of the psychological mechanisms of placement learning. Whilst the findings outlined above in some instances draw on learning theory, research in the area of work placements in general remains under theorised. Of the limited number of studies which approach placement research with a theoretical perspective, a range of theoretical ideas have been drawn upon (Eames and Bell, 2005). But the notion of learning through mediated action in social situations has particular relevance for understanding placement learning given its emphasis on providing authentic, contextualised real work experience (Eames and Bell, 2005). A lack of research exploring placement participation from a sociocultural perspective has led to a “paucity of knowledge about learning in the work placement” (Eames, 2003 p.8). This inability to underpin placement learning with a sound educational basis, as a result of a lack of theorisation through research, has hindered a recognition of placements as learning opportunities (Eames, 2003). An improved understanding of how learning on placement occurs and who contributes to this learning, would assist placement stakeholders to structure their programmes in a manner that maximises the learning outcomes (Eames, 2003). Below is an outline of the handful of studies which explore placement learning through the lens of sociocultural theory.

Sociocultural Placement Research

Stanley (2013) applied Lave and Wenger’s (1991) situated learning model to the exploration of learning on a 2.5 week accounting placement. In the course of their short placement experience, students were suggested to have peripherally contributed to authentic accounting activities. They were able to experience what it was like to work within an accounting office but with appropriate pressures and reasonable responsibilities for their level of experience. They were able to collaborate with colleagues who held a range of positions and in doing so gained opportunities for feedback in relation to their requirements. In the limited time spent amongst the community of practitioners the students were said to have taken their first steps toward engaging in accounting practice.

Based upon interviews with student nurses Cope, Cuthbertson and Stoddart (2000) identified the importance of the transition to the placement workplace for the process of incorporation into the community of practitioners. Initial incorporation was suggested to typically involve gaining acceptance as part of a team and participating in authentic professional practice. Students often reported earning professional acceptance through demonstrations of competence, and as they did so they were able to build in responsibility. Theoretical knowledge was said to have gained meaning due to the personal nature it acquired through the students’ situated experiences. The re-contextualisation of knowledge was suggested to be complex and cyclical with students reporting relating theoretical knowledge to

their placement activity then re-examining the theory in a new light based upon their active experience. On occasion this cycle was said to have been facilitated by the placement mentor. Learners were described to have been supported by mentors who modelled good practice and offered appropriate but gradually withdrawn support to gradually pass on responsibility to the learner, to foster competence and independence. Cope et al summarised from their findings that the placement experience requires acceptance into the workplace culture. Students they suggest therefore, should be offered social support and reassurance prior to their placement to tackle the vulnerability that inevitably stems from being a newcomer and from lacking the competence required to initially contribute to practice. Mentors in turn they argued should offer professional support geared toward fostering competence and should be made aware of the difference between (and importance of) social and professional incorporation for students' enculturation into the professional community.

Looking further into the process of professional acceptance, Pang (2015) focused more specifically on the issue of negotiating access to participation during the placement experience, examining how this process may be accomplished in a professional kitchen, an environment where participation opportunities are typically restricted. Based upon ethnographic data, Pang found that despite contractual agreements between the workplace and academic context, access to participation was not guaranteed. Often trainees were left simply to observe, and the majority did so until being assigned a task. One trainee, 'Max' initially did the same, but eventually without being asked began to contribute to Kitchen work. Using his own initiative, he purposively sought out and completed relevant tasks, generating work where it was not assigned and finding a way to participate in workplace practice. To conceptualise this behaviour Pang (2015 p549) used the term 'origination' which she described as

"an action that involves bringing about work and carrying it out. It is a self-directed voluntary action that has not been solicited by workers and is targeted at contributing to the work situation. It involves watching and making judgements about what to do, when to do it and how, as well as executing the action".

Through his repeated originations Max found ways to contribute as opposed to remaining idle. Through contributing in practice Max was able to learn by assessing the appropriateness of his actions through the reactions of the workers. This insight tended to come by way of implicit validation where the work process would continue to seamlessly flow in response to his actions or through immediate feedback and corrections where mistakes were made. By progressing from observer to participant through origination Max was able to establish his legitimate presence as a worker. Originations such as this were expected of trainees, though they were not explicitly told so. Where trainees did not

come to realise the existence of this implicit expectation, their employer and the other workers would become displeased, and feelings of animosity ensued. Based upon these findings Pang emphasised the importance of individual agency in the context of the placement workplace for negotiating access to participation in practice.

Through use of interviews, Eames (2003) sought to explore what and how one case study participant learned through participation in a New Zealand based cooperative education programme in the subject of science and technology. To do so Eames applied a range of sociocultural theories. The case study participant 'Joe' participated in two three-month chemistry placements where he worked as a research assistant. As a research assistant Joe was able to learn the practice of his fellow science researchers through being assigned tasks that he was able to carry out as a legitimate peripheral participant. By working among researchers, he learned that the research community was not homogenous, with different researchers adopting different styles. Through working with others, he was able to pick up tips and tricks to help him think like a scientist. From his colleagues he could witness the performance of research approaches and through talk he could better understand the processes he was seeing. By working with others, Joe came to understand the distributed nature of knowledge and the different roles people play within the research community. By being confronted by a less organised and controlled research process than he had experienced at university Joe's interest in science research increased, but he also learned the frustration that came with messy 'real' research which adapted his perception of the nature of the research process, and with time this allowed him to develop coping mechanisms for when research did not go as expected. As he gained more knowledge and experience and received feedback on his progress, he felt more able to contribute to discussions. Eames demonstrated that learning in the research science co-op placement entails a process of enculturation whereby the student learns through their own experiences as well as from the stories and actions of others. From these experiences it was possible to understand what it means to conduct real-world research and to learn the characteristics of a competent researcher. As such Eames emphasised the importance of orienting placement students toward the cultural and social elements that may contribute to their learning in a way that differs to their classroom experiences.

Eames and Bell (2005) later explored the process of enculturation a cohort of science and technology students experienced during cooperative education placements. This study formed the wider research project from which Eames's (2003) case study of 'Joe' was developed. Twenty-two science and technology students were interviewed regarding their two placement experiences, one of which lasted three months, the other nine. Learning on placement it was suggested, was highly

contextualised, with skills development varying as a function of the specific work each company was engaged in and the specific tasks to which the students were assigned. Part of skills development involved building proficiency in the use of machines and instruments and the carrying out of techniques. Each of the students noted that they had gained access to instruments that they had not been able to access at university. The researchers noted that whilst this might suggest teaching inadequacies on the part of the university, it was more likely a consequence of the fact that universities can't possibly teach all the technical skills each workplace would require. The students were able to hone these techniques through repeated exposure to their use in practice allowing them to augment their technical understanding. In the context of the science workplace the students also had to grow accustomed to a 'new' language consisting of technical terms, abbreviations and acronyms. This initially bred feelings of confusion, frustration and alienation until the students inevitably learned and adopted the language. Coming to understand the language of the workplace formed an important part of workplace learning as tasks and objects within the workplace were defined by the language used to discuss them. Thus the ability to understand the language was critical to carrying out tasks. Whilst on placement the students' abilities to apply their university learning varied. Students typically found the generality of their university learning meant it could only apply in limited ways to workplace activities. But students also learned entirely new knowledge whilst on placement which the researchers suggested may then complement rather than integrate with university learning. This they argued would result therefore in a broader educational experience overall. The academic and employment context were perceived as being very different. Learning on placement was seen to occur on a need-to-know basis, to be applied immediately. At university in contrast, learning was viewed as being geared toward use in future scenarios. Based upon their findings Eames and Bell suggest that attempts to make classroom science more closely resemble that which is experienced in the workplace would allow students to better understand what it means to be a scientist. One of the main differences between the two contexts was the use of assessment. In academia students often receive summative assessments, and in the workplace, assessments are more often formative and delivered through informal, infrequent feedback. Students, they suggest, may not recognise this form of feedback as assessment as they are not well versed in receiving and interpreting it. As such Eames and Bell recommend preparing students in advance of their placement to recognise the differences in assessment.

Chapter Summary

In this chapter I have sought to outline the main trends and findings in the existing work placement literature. It was demonstrated that as a consequence of the influence and expectations of the key

placement stakeholders, work placements are increasingly being incorporated into the undergraduate curriculum across a range of courses. Despite the incorporation of more placement programmes, in addition to high expectations in relation to their potential benefits, UK placement uptake was shown not to have followed a consistently positive trend, despite an array of research demonstrating the benefits of placement. Though the necessity of research exploring placement outcomes was made clear, it was argued that it was also necessary to explore the practices thought to engender the outcomes. From research exploring placement design and implementation a range of strategies were identified as a means to improve placement practice. Though research in relation to placement design and implementation was argued to be of value for informing placement practice, it was argued that to implement practice based upon an understanding of the mechanisms by which placement learning occurs, requires a theoretically underpinned analysis of the placement experience. Given the inherently situated nature of placement participation, sociocultural theories of learning have been posited as being particularly suited to its exploration, yet it was demonstrated that few placement studies have been conducted using sociocultural theory. Of those studies that explore placement learning based upon sociocultural notions, findings have highlighted the contextualised, social nature of placement learning. Learning on placement has been demonstrated to occur through a process of participation and enculturation which is supported through interaction and engagement with the people and resources available within the workplace context. To participate and make use of the available support however requires access to practice which must be negotiated through independent agency and relations with other community members.

Anderson and Novakovic (2017, p377) suggest that “asking students about their experiences, although largely absent from the literature, is important because their accounts not only describe but theorise the mechanisms and processes whereby they capitalise on their learning on placement, including the challenges they must overcome.” They further argue that insufficient attention has been given to the meaning of placements as experiences and processes as opposed to their conceptualisation as a means to an end. The existing placement literature has demonstrated the value of theorised, qualitative explorations of the placement experience for beginning to identify the process of learning on placement. This study aims to contribute to the small body of existing literature which explores placement learning through the lens of sociocultural theory and does so based upon the UK sandwich year experiences of undergraduate computing and engineering students, to help combat the paucity of knowledge about learning in the work placement, initially highlighted by Eames (2003). In particular, the study is aimed toward shedding light on the placement experience in its complexity as a socially and culturally situated learning experience, through the application of Communities of Practice Theory and Vygotsky’s Zone of Proximal Development. In doing so, I seek to uncover the

psychological mechanisms which underpin the complex process of learning and identity development that stems from placement participation. I focus on identity based upon the ontological assumption that learning is as much about becoming, and knowing how to behave, as knowing what to do. Learning therefore involves a shifting identity and so the two are inextricably linked. The following chapter discusses in depth the conceptual framework that will be applied in examining the process of learning and identity development that takes place through placement participation.

Chapter Two – Theory

In this chapter I outline the theoretical framework underpinning the remainder of this research project. By describing the two theoretical perspectives that make up this framework I aim to demonstrate how they serve to address the gap in understanding around the mechanisms which underpin participation in sandwich placements identified in the previous chapter. I will demonstrate how sociocultural theory provides a useful and psychologically meaningful scaffold to enable an understanding of experiences of placement participation. To begin I present the study's central theoretical position – Lave and Wenger's (1991) Situated Cognition/Communities of Practice Theory in which learning is positioned as engagement in social practice. I demonstrate how this position foregrounds the fundamental links which exist between learning, social practice, community membership, meaning making and identity. Subsequently I outline Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD) to dissect the process of how practices are actually learned. Based upon this framework I suggest that placement learning must be understood in its complexity as a socially mediated experience. Toward the end of the chapter I discuss the aims of the study and explain how past literature and the study's conceptual framework have contributed to their formation.

Communities of Practice Theory

Approaches to providing education within the UK have in large part been informed by cognitivist assumptions as to how learning takes place. Lave and Wenger (1991) however, in their theory of situated learning re-envisioned what it is to learn. Whilst they appreciated that there are facets of learning that involve processes occurring within the mind, this is perceived to be only part of knowing. In communities of practice theory, the primary focus is on learning situated in the context of a person's lived experience of participation in the world. By this they were not suggesting that students cannot learn within education, but their arguments would suggest that a major component of academia is learning how to succeed specifically within the academic context. To what extent the skills and knowledge learned in higher education are applicable beyond that context Morton (2012) argues is a question of whether academic practice can provide adequate legitimate peripheral participation for the workplace. Citing Hanks (1991) Morton suggests that learning and the subject learned are embodied in participation frameworks, and as such, of importance in issues of learning transfer are the forms of participation that take place and how commensurate they are between the two contexts. Evidence of a recognition of this premise can be seen today in educator's ongoing commitments to increasingly diverse pedagogical approaches, including for example problem-based and case-based approaches to learning, aimed toward fostering the knowledge application, critical and reflective

thinking and self-managed learning required within the workplace (Baeten, Dochy and Struyven, 2012). Work-placement programmes are intended to bridge the gap which exists between academic and workplace practice (Yap, 2012). Arguably then placements could be viewed as the next stage in the learning process, offering students who have built critical skills through engagement in active learning pedagogy the opportunity to then apply those skills to authentic situated workplace practice. This highlights the importance of attending to academic and workplace practice in the exploration of learning, to examine the commensurability of participation between both settings and to identify the practices which facilitate or hinder the transfer and application of knowledge across the two contexts as students attempt to progress in their process of becoming a professional within their chosen industry.

Lave and Wenger (1991) emphasised the learning that takes place in day to day life, when people of varying levels of expertise come together to mutually engage in joint endeavours. Consequently, success or failure to learn is characterised from this perspective in terms of this engagement, and the conditions that enable or disable joint participation. Accordingly, the focus is not entirely on individuals, nor upon social institutions, but is instead aimed toward exploring the 'communities of practice' that are formed as people pursue a shared endeavour. Participation in social practice, from this position is the fundamental process through which people learn and resultantly become the people that they are (Lave & Wenger, 1991).

Communities of Practice – A Definition

Communities of practice are formed as people engage in a process of collective learning in a shared domain of human endeavour. They are constituted by groups of people with a shared concern or passion for something who as a result of their frequent interactions learn how to do it better (Wenger, 2011). It is a fundamental part of human nature to be in constant pursuit of some form of enterprise, and in this pursuit an individual will interact both with other people and with the world, and in doing so they learn. This gradual, collective learning fosters the development of practices that reflect this pursuit of enterprise. These practices can be considered as the property of the community of people that collectively created them, hence the term 'communities of practice'. Take for example Vale and Weiss's (2010) research on a crew of graffiti artists. In the pursuit of self-expression aspiring and established artists were demonstrated to come together to engage in the act of graffiti. By meeting regularly with their crew, the artists were able to share advice and tips with each other. Each was able to progress in skill by learning from one another how to paint in styles of increasing complexity. Each could also improve in techniques such as 'cap control' as well as developing personal behaviours such as the avoidance of staining one's hands and learning to carry caps separate to cans to prevent issues

with the police (Vale and Weiss, 2010). During crew meet-ups stories of experiences were shared, group projects planned, and tools created. Graffiti artists were thus shown to learn by coming together and engaging with one another in the pursuit of their joint endeavour, in doing so they established practices which facilitated learning and participation for both newcomers and established members alike. Communities of practice however do not only result in positive learning outcomes; it is also possible within a community of practice to learn detrimental and undesirable behaviours. Tynjala and Virtanen (2005) for example found students undergoing learning on their vocational education programme had come to learn about the disadvantages associated with their field and strategies they could take to shirk many of the professional duties they did not want to engage in.

Whilst the learning that takes place can in itself be the reason for the community to come together, it can also be an incidental consequence of the group's interactions. As membership in communities of practice is a pervasive part of life, we each belong to many, whether they are in education, work, through hobbies or through family life, a person will typically be a member of a number of communities at any given time. Naturally the communities we are a member of changes throughout the life-course (Wenger, 1998) which underpins the dynamic nature of learning and identity. Communities of practice (CoPs) come in a variety of forms. They can be small, large, formal, informal, local, and global. In engineering education for example, learning on the degree occurs locally amongst the community of educators and peers but is also informed by the standards required for accreditation set by the Engineering Council and more globally by the engineering community through wider understandings of engineering education. The nature of community membership in itself can also vary along a continuum of participation, with the potential to be core, peripheral and anywhere in between. Not all communities however are CoPs. A CoP, always involves three characteristics:

- The first is the domain. The identity of a CoP is defined by a shared domain of interest. Members are committed to this domain and consequently are committed to developing a shared competence that distinguishes themselves from non-members. Students studying computer science for instance would work toward a much greater proficiency with complex computer programmes than a layman would.
- The second characteristic relates to the community. As members pursue their interest in their domain, they engage in shared discussions and joint activities all the while building relationships that enable shared learning. CoP membership entails more than skills and knowledge in relation to a specific task, the communities develop around things that are of importance to members. As members organise themselves around something that matters to them, they build sustained relationships and acquire a sense of joint enterprise and identity.

- The final characteristic is the practice. Members of a CoP should be viewed as practitioners, they develop a range of shared resources which contribute to carrying the knowledge of the community. This shared practice:

“...includes both the explicit and the tacit. It includes what is said and what is left unsaid; what is represented and what is assumed. It includes the language, tools, documents, images, symbols, well-defined roles, specified criteria, codified procedures, regulations, and contracts that various practices make explicit for a variety of purposes. But it also includes all the implicit relations, tacit conventions, subtle cues, untold rules of thumb, recognisable intuitions, specific perceptions, well-tuned sensitivities, embodied understandings, underlying assumptions, and shared world views” (Wenger, 1998 p.47).

The development of this shared practice requires time and sustained interaction (Wenger, 2011). It is dynamic, involving learning on the part of everyone, not simply novices. But once created, these practices are not set in stone, they are constantly renegotiated in their performance. The concept of practice connotes doing, but it is doing within a historical and social context which gives structure and meaning to what is being done.

Roberts (2006) produced the following summary table outlining the key characteristics of CoP based upon the assertions of Wenger (1998).

-
- Sustained mutual relationships – harmonious or conflictual
 - Shared ways of engaging in doing things together
 - The rapid flow of information and propagation of innovation
 - Absence of introductory preambles, as if conversations and interactions were merely the continuation of an ongoing process
 - Very quick setup of a problem to be discussed
 - Substantial overlap in participants’ descriptions of who belongs
 - Knowing what others know, what they can do, and how they can contribute to an enterprise
 - Mutually defining identities
 - The ability to assess the appropriateness of actions and products
 - Specific tools, representations, and other artifacts
 - Local lore, shared stories, inside jokes, knowing laughter
 - Jargon and shortcuts to communication as well as the ease of producing new ones
 - Certain styles recognized as displaying membership
 - A shared discourse reflecting a certain perspective on the world
-

Table 1: Community of practice key characteristics (Roberts, 2006, p625).

The concept of a community of practice, however, has been argued to be problematic, Klein, Connell and Myer (2015, p108) attribute this issue to the “somewhat sprawling and ill-defined nature of the concept” and the lack of agreed standard characterisation of a CoP. They argue different authorities stress different defining features. Wenger et al (2002) suggest communities of practice exist in a wide variety of organisational contexts and in organisations of vastly different sizes. Roberts (2006) however, argues that while it may be possible to identify CoP’s in both small groups of people who work in close proximity and in globally distributed companies with members in their thousands, there must surely exist significant differences among such different forms of communities. In some respects, Roberts suggests, large distributed communities should be viewed as a collection of CoPs. Wenger (1998) explains communities of practice can form part of a constellation of practices which arise from interactions at the boundaries of communities. In these interactions certain practices may permeate different communities, but they will be typically be adopted and applied in different ways (Roberts, 2006). I would argue that this notion of a constellation of practices is most fitting of the workplace experiences of the students in the current study. Defining what constitutes a CoP as it pertains to the experiences of the students in the current study was not necessarily clear cut, given the wide variance in the nature of potential career paths and job roles in computing and engineering and thus the broad differences between the size and scope of the organisations each student entered. However, applying the characteristics outlined above to the students’ accounts of their experience, I would argue most commonly their specialist team within their department constituted their CoP. Typically, the teams were formed of members of similar roles but with varying levels of experience and seniority, for instance design engineers working among a community of fellow design engineers of varying status. In these communities, people from the same discipline sought to improve their skills by working alongside members of varying experience and status and by participating in increasingly complicated tasks, as is characteristic of a CoP as defined by Lave and Wenger (1991). However, often in the course of day to day practice the students also engaged in interactions with members in other teams and departments from which they were also able to learn how to more competently perform their role and gain a sense of their wider industry. I would characterise these as boundary interactions as opposed to them constituting an extension of one’s own community as there were clear differences in the practices of these teams and they appeared to lack the characteristics typical of one singular community e.g. a lack of preamble, shared artefacts and the ability to assess the appropriateness of one another’s actions in the context of their job role.

Legitimate Peripheral Participation

Lave and Wenger (1991) characterised learning through the concept of legitimate peripheral participation (LPP). This denotes a mode of engagement within a CoP whereby a new member will learn by participating in the practice of an expert, but to enable learning, the newcomer participates in this practice to a lesser degree and with less responsibility for the overall product. To master the skills and knowledge of the CoP, newcomers must gradually with time move from this peripheral participation toward full participation in community practices. In the context of a higher education degree for instance, typically the first year while assessed will not count toward the overall degree class, reflecting the need for students to gain an opportunity to acclimatise to the required practices of the course. As students with time gain opportunities to engage with the reading and assessments of the degree programme, they can then increasingly shift their participation, ultimately becoming better able to understand and negotiate what successful and unsuccessful practice in the domain of the degree looks like. This concept of LPP emerged initially through research observing craft apprenticeships for Liberian Vai and Gola tailors. During this research Lave (1997) sought to explore how it was that apprentices could engage in a common structured pattern of learning experiences, with no teaching or assessment, without simply copying every-day tasks. Lave observed that at the beginning of their apprenticeships, the apprentices would only observe the work of the experienced tailors, but with time they were then able to begin making easier garments, and once they were capable of effectively making these, they were able to move on to the creation of more complex garments. The tailors thus gradually moved from the periphery, involving mostly observation toward full participation involving independently designing the most complex clothing. This model of course does not perfectly fit with the notion of learning in higher education as the psychological mechanisms of learning on a degree course are less clear.

For community members who have gained legitimate peripheral access, the practice of the community creates a form of curriculum to be learned. For newcomers, learning at the periphery enables them to develop a view of what the enterprise as a whole is about and what there is to be learned, in addition to learning about and becoming absorbed in the culture of the practice. Participants are able to gradually generate a general understanding of what constitutes the practice of their community including who is involved, what they do, how non-members interact with the community, what other learners are doing and what to do to become a full practitioner. This is in addition to witnessing how long-standing members collaborate, and what they enjoy, dislike and admire. Finally, it offers exemplars for motivating learners in the form of masters, finished products and advanced apprentices on their way to becoming full practitioners (Lave and Wenger, 1991). This

insight however does not remain frozen, understandings of the community evolve with participation in response to evolving relationships, divisions of labour and changes in practices.

This notion of (LPP) is of value for understanding the learning journey of a student embarking on placement. The move from university to placement is a move from familiarity and experience to a lack of surety. At university the student will have built at least two years of experience of attending lectures, seminars and tutorials, completing assignments, meeting lecturers, making friends, learning the ins and outs of the various buildings. Whilst they may not be full participants, by the time they reach their third year – the placement year, they are by no means newcomers and yet as they leave university for a year in industry this is what they will now become, they have no experience of their new placement community and as such they are peripheral participants once more. In this new, strange and unfamiliar context, identity is in flux, the student cannot yet know what they should do. They don't know how to define themselves in relation to this community because they don't yet understand its practices and how these practices shape the community and its members. But through a process of legitimate peripheral participation, there is the potential to develop an understanding of their new community and their place within it.

The work of Pang (2015) which was discussed in the previous chapter, demonstrated the relevance of the notion of LPP for understanding the placement learning process. Discussing the case study of 'Max', Pang demonstrated how during his placement, through the process of incrementally 'originating' work activities and receiving ongoing feedback on his performance of them, Max was able to learn some of the valued practices of the community of cooks and perform them when required. Advancing from initially watching others and playing a minor supportive role to contributing to increasingly more complex tasks, Max was shown to be able to negotiate a valid position for himself within a kitchen where his colleagues did not have the time or space to teach.

Stanley (2013) in addition was shown to have demonstrated where LPP enabled students on a 2.5 week accounting course to experience legitimate, authentic, worthwhile work without the pressure of too much responsibility. During the course of their short placement experience students were able to develop a 'peripheral trajectory'. The concept of the peripheral trajectory refers to the notion of remaining on the periphery of a community but still gaining enough access to its practice that this experience can still contribute to one's identity (Wenger, 1998). By developing a peripheral trajectory during this very temporary experience, the students were able to gain an understanding of what it is like to work in an accounting office with an 'appropriate' level of pressure in relation to deadlines, accuracy and accountability, enabling students to take their first step toward engaging in accounting practice.

The Negotiation of Meaning

Central to Communities of Practice Theory is the idea that we are as people concerned with meaning, and so to understand placement learning it is of importance to focus on how the students make sense of the context of their placement and attribute meaning to the practices they experience. It is through practice that engagement in the world is experienced as meaningful. Negotiating meaning involves both interpretation and action and it always generates new circumstances in which further negotiations of meaning will occur, as living meaningfully within the world is not a simple state of affairs but a continuous process of renewed negotiation. Designing a computer programme at university for example would likely involve similar and yet very different practices to conducting the same task in industry. The negotiation of meaning is a productive process; one in which meaning is not pre-existing yet not made from scratch, it is historical, dynamic, contextual and unique (Wenger, 1998). There are two processes, which together are fundamental to this negotiation of meaning; participation and reification.

Wenger's (1998) use of the term participation refers to the process of taking part in something with others, and thus entails both action and connection. Characteristic of participation is the possibility of mutual recognition. It is through experiencing mutuality that participation forms a source of identity. By recognising mutuality through participation, people are able to shape one another's identity. In the context of education for example, teachers might deliver lessons alone, but consult with one another to improve their lesson plans. If one teacher was to ask another for their input on a lesson plan, finding they were unwilling to help, they might learn from their experience not only that this is not a colleague to turn to when in need of help, but they might also come to recognise in themselves their own generosity based on the belief that they would act differently if the situation was reversed. Participation in social communities whilst shaping individual identity also has the potential to shape the community. If for instance the majority of teachers in a school shared the mindset of the begrudging teacher, unwilling to share notes or offer assistance, the atmosphere and practices of the teaching community within that school would be very different to that of another where support and collaboration was championed and encouraged.

Participation is not simply engagement in specific practices with specific people within a given community. It places the negotiation of meaning in the context of membership across a variety of communities of which a person is a member. As a member of multiple communities an individual will draw upon a range of experiences and practices in any given situation. As a constituent of identity, participation is not something a person can turn on and off, the effects of participation are not restricted to the context of a person's engagement, it is a part of who they are.

In the process of participation, all CoPs produce abstractions, tools, stories and so on. Giving form to experience through the production of objects in this way is known as reification. The character of a reification is not simply in its form but also in the process of its integration into practice. A psychometric test for example given to a prospective job candidate is not only a test, it is a reification of the company's commitment toward a more objective recruitment process, it is an attempt to imbue what the company desires of an employee. As a shortcut reification can be powerful. Its succinctness, portability, physical persistence and focusing effect contribute to its power, this is however also its danger. Implementing a shared lesson plan for instance can be used to foster quality and consistency but adhering to the plan too rigidly might also as a result quash creativity and growth. The concept of reification suggests that forms can in some respects take on a life of their own beyond the context in which they were initially created. Students for example come to learn that competence relates to the notion of independent learning which is reified through independently written assessments submitted through software such as Turnitin which verifies that no two students have submitted the same work. Yet this is at odds with competence in industry where the ability to work collaboratively is prized. The meaningfulness of a reification thus has the potential to be expanded or lost. As a constituent of meaning therefore, reification, Wenger suggests, is always incomplete and ongoing with the potential to be both enriching and misleading.

Participation and reification are not concepts to be considered in isolation, they work together in an interplay in which they are both distinct yet complementary. As a duality participation and reification can enable one another. Wenger (1998) argues that this interplay is largely unproblematic and that the complementarity of participation and reification allows them to compensate for one another's shortcomings. Delivering a psychometric test alone for instance would likely identify some viable candidates for a placement position, but without a corresponding interview, where a representative of the company could then interact with the candidates face to face, it would be difficult to determine if the candidate was truly suitable for the job. Some candidates might understand what is expected of them on paper but might come across poorly in person. Participation can thus make up for the limitations inherent in reification by repairing the potential misalignments of reification. Where the rigidity of reification renders it obsolete, where its ambiguity is misleading, and where its purpose becomes lost, participation is of great value. Likewise, reification can repair the potential misalignments of participation such as when the informality of participation causes confusion, when its locality is too confining, when its partiality is too narrow and when its fluidity impedes coordination. A procedural guideline document might for instance become of use to a novice placement student in a factory, who finds himself struggling to understand the confusing verbal instructions he was provided earlier.

Contrary to Wenger's suggestion that the relationship between participation and reification is largely unproblematic however, one might alternatively argue that, given participation is constructed by the range of activity and meaning which contribute to a learner's experience, then what is reified will not always be obvious, and why it is reified will equally not always be obvious, and so the necessity to participate will not always be clear. The peer-reviewed journal article for example is reified as one of the most trustworthy sources of information within higher education. Yet students often lack the experience to understand that this is the case, or why this is so, leading many to continue to cite sources such as websites which were deemed acceptable at earlier levels of education.

In addition, where there is an over-reliance on either participation or reification, prioritising one above the other, the continuity of meaning can become troublesome in practice. Where too great a reliance is placed upon participation there can be too little material to anchor the specificities needed for coordination and too little to uncover diverging assumptions. A website designer might for instance struggle to produce a client's idea relying solely on the client's verbal description of what they want. The same website designer might however also struggle to produce a client's idea based solely on a written brief received from the client, without the opportunity to clarify the brief through interactive discussion. Hence if the over-reliance is upon reification with few opportunities for shared experience and interaction then there can exist too little overlap in participation to form coordinated, relevant or generative meanings.

In addition to forming their own practices through participation and reification, CoPs also tend to include elements of other communities. As an individual comes into contact with these other communities, to which they do not belong, non-participation becomes an inevitable part of life. A person will constantly cross boundaries to other communities but not all of these encounters will be significant. A person cannot identify with everyone or everything they encounter. A researcher for example studying an aspect of the medical profession might in the course of their research come across a surgical procedure which they must look up in order to better understand their participant's experiences. Though they might not understand in great detail how that procedure is performed, this would not have any significant impact on their identity as they would recognise as an academic researcher that this level of medical knowledge is unnecessary for their research and bears no relevance to their day to day life. For the surgeon expected to perform that procedure in contrast, this lack of knowledge would have a significant impact on their identity as a competent medical professional. Experience of non-participation, whilst an inevitable part of life, takes on a special significance depending on the ways in which participation and non-participation come together to define each other. This is an important dynamic and can result in either 'peripherality' or 'marginality'. With marginality, non-participation is a hindrance, it prevents and restricts participation. Where a

worker is denied access to tasks that would enable them to advance beyond their current position for instance, marginality would make progression seem impossible. With peripherality in contrast participation is partial, but the aspects of non-participation are a necessity and can be viewed in a positive light. Peripherality can enable learning to take place with less pressure because participation is less than full, such as in the earlier example of culinary training where 'Max' was able to observe the role of others before eventually understanding where his own role fit in relation to his colleagues.

Tobbell and O'Donnell (2013a) claim that the notion of LPP is under-theorised. Mere presence within a community they argue, is not enough to enable a move from peripheral to full participation. Peripherality, though initially enabling, could become problematic if a person were to be unable to engage in the community's valued practice, even after an extended period of time where they no longer have the protection of legitimate peripherality. Legitimate peripherality and elements of non-participation can therefore be either empowering or disempowering.

Cope, Cuthbertson and Stoddart (2000) provide a clear demonstration of the paradoxical nature of the partiality of participation in a sample of nursing students experiencing short duration placement opportunities. For some students, they explained, placement participation provided experiences of becoming incorporated into their nursing community of practice as expressed through stories of gaining acceptance as a part of the team;

"When I got to the ward I got on well with staff and within, you know, your settling down period and then you were given more responsibility and it was a case of 'well, you were getting that way because we feel you are able to deal with it'. So as the weeks went on you felt as though you were getting somewhere and that you were obviously doing a good job otherwise you would not get the responsibility" (p853).

Students were reported as using their legitimate peripherality as a space to develop competence and build professional trust from their colleagues. Whilst students had to earn the right to extra responsibility, social incorporation into the team was something that could be offered immediately, but only where the staff deemed it important.

"I felt from like day one as soon as you went in you were included in what was happening, and you were informed in everything that was going on" (p853).

This distinction between social acceptance and professional incorporation is important. As Cope, Cuthbertson and Stoddart highlighted professional incorporation had to be earned through experience in the community and building trust, it required basic familiarity with the placement context whereas social acceptance could be freely given as soon as the placement began. But in

practice, both social acceptance and professional acceptance were bound up in each other. Social acceptance had the potential to ease familiarisation and improve the placement student's confidence to show the competence that was required to gain professional acceptance. Where there were social difficulties early on in the placement experience, professional problems often followed.

"One of the wards I went to in the second half of my training had a bad name amongst students in the way they were treated... I always went into everywhere with an open mind but two or three of the staff, and it was actually those who were mentors, were like 'do this, do that' If you questioned them it was like 'You should know that'" (p853)

Evidently the legitimacy required to learn on the periphery of a placement community is not always easily obtained, this example demonstrates where implicit practices can foster marginalisation. But it is not however only through implicit practice that the opportunity to develop a trajectory of full participation can be hampered. The nursing students reported feeling their placement structure also hindered their incorporation into the community.

"Placements for the university going out one day a week was a bit hard going. You could never fit in anywhere, you never felt as though you were part of the team, working with anyone. You always felt an odd carrot" (p853).

In this instance, the learning trajectory the student desired and the nature of the placement model they experienced were incongruent. Whilst the student hoped to identify as a team member in the way that would be enabled by LPP, the short, sporadic participation that was experienced did not enable the mutuality necessary for identification as a team member.

Wenger (1998, p167-168) suggests that the combination of participation and non-participation through which a person comes to define themselves, reflects their power both as an individual and as part of a community to determine their relations with the rest of the world. This, Wenger suggests, can shape life in relation to;

- *"How we locate ourselves in our social landscape*
- *What we care about and what we neglect*
- *What we attempt to know and understand and what we choose to ignore*
- *With whom we seek connections and whom we avoid*
- *How we engage and direct our energies*
- *How we attempt to steer our trajectories"*

This however gives the impression that decisions with regard to belonging are largely determined by the individuals themselves. And yet in the case of marginalisation, the nature of participation is not always within an individual's control.

As evidenced by Cope, Cuthbertson and Stoddart (2000) in the case of placement participation, gaining the status of team-member, forming relationships based on social acceptance and mutual respect and gaining the opportunity to learn in the safe space of the periphery requires a kind of legitimacy and acceptance that is not always offered. Nor too is it always even a possibility, as the example in relation to the structure of placement demonstrates, some circumstances beyond the control of any one individual have the power to fundamentally alter and restrict what is and isn't possible within a placement opportunity.

Identity

Inherent throughout the discussion of the theory thus far have been issues of identity. This is because, according to Wenger (1998), issues of identity are inseparable from issues of practice, community and meaning. Participation in communities of practice deals with the profound issue of how to be a human being. In the production of a CoP, members must engage with one another and acknowledge each other's membership, this means that as a member of a CoP everyone will have to negotiate ways of being a person within that context. By engaging in CoPs a person builds experiences of participation, whilst at the same time becoming reified as a participant within that community by the other members. Experience of identity in practice is therefore not a self-image, but a way of being in the world. Who a person is lies in the way they live, not simply in what they say or think about themselves or what others say and think about them, though this too is an important part of practice. Students for example do not solely identify as students because of a label they have adopted for themselves and have been given by others. Students identify as such because they engage in the act of study, they attend lectures, read course guides, submit assignments and engage with literature. They build experience of academic study and all that it entails and build upon their identity as students accordingly. Identity is constituted by layered events of participation and reification. As a person encounters the effects they have on the world and develops their relationships with others, these layers continue to build to form an identity based on a complex interweaving of participative experience and reificative projections. By bringing the two together in the negotiation of meaning, identity is formed. In this sense, identity requires constant negotiation.

The various forms of participation that a person will experience in relation to the many communities of practice to which they belong will in addition also contribute to the production of their identity. As such, identity should be considered as an experience of multi-membership which requires the work

of reconciliation to maintain one identity across the boundaries of these communities. Membership in a given community of practice will only form part of a person's identity. The various forms of participation a person will experience contribute pieces of a puzzle that come together as opposed to them forming disconnected aspects of the self. Identity therefore is a nexus of multi-membership that is neither unified nor fragmented. While engaging in various communities of practice a person will likely behave in different ways, they will develop different aspects of themselves and build different perspectives. Multiple forms of participation, no matter how distinct, Wenger (1998) argues, interact with and influence each other.

Membership in a CoP constitutes identity not just through labels associated with this membership, but through the competence it involves. Identity is an experience and display of competence. If for example an individual is in a CoP in which they are a full member, they will be in familiar territory, so they will therefore know how to act competently, and they will be recognised as such. They will in addition know how to engage with other members and will have an understanding of what the other members do and why they do it because they have an understanding of the enterprise to which everyone including themselves is accountable. And they will know how to share the resources required for participation in the community. Whereas if that person were to join a new community, they are suddenly in unfamiliar territory. They will not quite know how to engage with others yet, they might not yet understand the subtleties of their enterprise as it is defined by the community and they may lack the shared references used by other members. Thus, just as membership shapes identity through the familiar, non-membership shapes it through confrontation with the unfamiliar. Identity is relating to the world and the ways in which it is familiar and foreign. A person experiences and manifests themselves based upon what they recognise and what they don't, by that which they understand immediately and that which they can't interpret, by that which they can appropriate and that which alienates them. The work of identity is constantly ongoing, and any given person experiences a multitude of forms of participation over time, as a result, trajectories of identity are formed both within and across CoPs.

Wenger (1998, p154) outlined various forms of trajectory:

- ***“Peripheral trajectories.*** *By choice or by necessity, some trajectories never lead to full participation. Yet they may well provide a kind of access to a community and its practice that becomes significant enough to contribute to one's identity.*
- ***Inbound trajectories.*** *Newcomers are joining the community with the prospect of becoming full participants in its practice. Their identities are invested in their future participation even though their present participation may be peripheral.*

- **Insider trajectories.** *The formation of an identity does not end with full membership. The evolution of practice continues – new events, new demands new inventions, and new generations all create occasions for renegotiating one’s identity.*
- **Boundary trajectories.** *Some trajectories find their value in spanning boundaries and linking communities of practice. Sustaining an identity across boundaries is one of the most delicate challenges of this kind of brokering work.*
- **Outbound trajectories.** *Some trajectories lead out of a community. What matters then is how a form of participation enables what comes next. It seems perhaps more natural to think of identity formation in terms of all the learning involved in entering a community of practice. Yet being on the way out of such a community also involves developing new relationships, finding a different position with respect to a community and seeing the world and oneself in new ways”.*

In the negotiation of a trajectory, encounters between generations of members of the CoP are of importance. They are much more complex than the simple transmission of heritage. It is in these encounters with old timers that newcomers are able to find their experience of history. With the arrival of new generations of members in turn, comes the potential for the community to ensure its own survival and for the opportunity to further refine its practice. Hamilton (2011) for instance demonstrated where two generations of families together, were able to ensure that their family business both endured and transformed over time throughout social, cultural and technological changes. Whilst the first generation founded the business, the second generation by drawing on practices from outside the business were able to introduce new practices, resulting in cycles of reproduction and transformation. The daughter of a cheese maker who had studied food technology at college instigated practices that enabled the business to expand their supply to include supermarket chains. Meanwhile, the son of a grocer used his computer studies course to introduce computing systems throughout his parents’ shops. Though Fox (2000, p860) suggests a limitation of Communities of Practice Theory to be that it “tells us nothing about how, in practice, members of a community of practice change their practice or innovate”. Hamilton (2010) was able to demonstrate that innovation can result from the translation and transferal of practice from other communities. Though Hamilton demonstrated how newcomers are able to progress a community practice, Wenger (1998) argued that whilst newcomers are forging their own identity, they generally must find a place for themselves in relation to the past which typically requires them to emphasise continuity over discontinuity. To do so requires access to the history to which they hope to contribute and make this history form a part of their own identity. Resultantly new members of a community are not necessarily more progressive than established members and will not necessarily be aiming to change the community more than

anyone else (Wenger, 1998). They are invested in continuing the community as it stands because in this continuity is the connection to a history that they have not been able to experience directly. Long-term members in contrast do not necessarily seek continuity. A history of participation in contrast can foster the confidence to invest energy into advancing the community, because of this, old-timers may be thankful for the introduction of new generations to the community and the potential they offer for moving beyond the past (Wenger, 1998).

Issues of Power

Relations between generations, though important for ensuring the continuation and transformation of practices are not exclusively harmonious. The interrelations that are formed through engagement in practice can be supportive and constructive, but they can also be fraught with tension and conflict. The relationships formed through mutual engagement reflect the complexities of doing things together. They are:

“complex mixtures of power and dependence, pleasure and pain, expertise and helplessness, success and failure, amassment and deprivation, alliance and competition, ease and struggle, authority and collegiality, resistance and compliance, anger and tenderness, attraction and repugnance, fun and boredom, trust and suspicion, friendship and hatred” (Wenger, 1998, p77).

Though Wenger recognised the potential for tension and conflict to occur in the course of mutual engagement, a common criticism of Lave and Wenger’s situated learning theory and their subsequent work on Communities of Practice is that they fail to fully explore the significance of unequal power relations in the operation of communities of practice (Fuller et al, 2005). Wenger (2010) himself accepts that the term community risks unintentionally connoting harmony and homogeneity, and that the self-generating character of CoPs may appear to obscure the degree to which they are influenced and shaped by their wider institutional, political and cultural context. Wenger-Trayner (2016) argues however that Communities of Practice Theory is a profoundly political theory of learning. He argues that when the definition of competence is a social process within a community of practice, power relations are inherent (Farnsworth, Kleanthous & Wenger-Trayner, 2016).

A community of practice is a social history of learning. Over the course of time that a community develops, they define and create a regime of competence. That is, the community come to define what determines successful and valued practice and how that practice should be performed within that community. This creates a boundary between those with experience of that history and those without (Farnsworth, Kleanthous & Wenger-Trayner, 2016). For those who have experience of the

community, who have the legitimacy to enforce the regime of competence or successfully challenge it, it offers a form of power, but for those without experience, boundaries can hinder participation by limiting access to practice and learning resources. Not all participation is considered legitimate, nor has the power to change the criteria for competence. For those who identify with a community and hold themselves accountable to its regime of competence therefore, every learning move made is a claim to competence which may or may not be successful (Farnsworth, Kleanthous & Wenger-Trayner, 2016). Identification and accountability to a community therefore makes members vulnerable to its power plays (Wenger, 2010).

During the course of their participation in a CoP, members will obtain positions of varying standing based upon a number of factors including for example their experience, age, expertise and authority. Those who's higher standing allows for more centripetal participation, attain a greater role within the community, and therefore wield greater power in defining competence and negotiating meaning (Roberts, 2006). But the ability to both adopt and produce meaning within a community of practice is an important facet of learning for all members. In the pursuit of a joint enterprise, members must draw upon their own experience as a resource or adopt the proposals of others. It is in the adoption and production of practice that newcomers are able to appropriate the meanings of their community and progress in their trajectory of participation. A member's contributions in turn are only effective where they are adopted by the community. Where members' contributions are never adopted therefore, they are increasingly likely to develop an identity of non-participation that marginalises them.

In CoPs there is a higher propensity for some members to mostly produce meaning, while others merely adopt (Wenger, 1998). This tends to be most often the case in communities with a hierarchal structure where negotiation is limited to key figures of authority, limiting the power of other community members (Roberts, 2006). Where the ownership of meaning is unequally distributed in this way, marginality and an inability to learn can result (Wenger, 1998). Klein, Connell and Meyer (2005) refers to communities such as this as stratified. They describe stratified communities as those that explicitly acknowledge the differential experience of members and treat different grades differently i.e. forming strong distinctions between novices, masters and intermediaries in terms of the activities the members are permitted to perform. Knowledge here flows down the hierarchy of grades meaning progression and promotion within the community is largely dependent on the successful assimilation of the knowledge of 'old-timers'. Klein et al contrast this structure with that of the egalitarian community in which differences between grades are minimised, affording members relatively equal treatment.

Typically, the experience of old-timers means it is often them who have more power than newcomers to assess claims of competence. Where they use this power to prevent newcomers sharing their own perspective it has the potential to prevent learning both for the newcomer, and the community at large, who are denied the opportunity to gain the fresh perspective of an outsider (Wenger-Trayner, 2016). These constraints, whereby more powerful practitioners deny novices access to full participation are not solely a consequence of the broad structure of the community at large i.e. egalitarian vs. stratified but are also affected by the agendas of individual community members. Carlile (2004) for instance, argues that these constraints are most likely to occur where newcomers threaten to transform the existing practices of the community, risking the stake full participants have invested in its practice. But newcomers also pose a threat in the sense that they might ultimately out-perform or even replace old-timers. Lave and Wenger (1991, p116) argued of the relationship between new and established members that 'each threatens the fulfilment of the other's destiny, just as it is essential to it'.

Warhurst (2008) for example, found established lecturers prevented newcomers from contributing to practice by engaging in behaviours such as denying them access to assessment design meetings. Warhurst postulates that this resulted from the newcomers' experience of a teaching development programme, which may have caused their established colleagues to feel threatened by their up-to-date pedagogic understanding, which they countered by marginalising and thus disempowering the new lecturers. Similarly, Johnston (2016) evidenced where student teachers struggled to gain validation for their contributions to classroom practice as a result of conflicting pedagogic values between newcomers and old-timers. While student teachers hoped to try new ideas with their pupils, applying learning promoted in their university classes, host teachers would deny them the opportunity, blaming the potential for the new methods to negatively impact the class. Rather than gaining the opportunity to develop their own pedagogic style in a context with a shared sense of purpose, support and trust, the students were pressured to merely adopt the existing approach. This was experienced as an emotionally draining experience in which the students felt controlled and disempowered. Where an individual's claims to competence are consistently rejected in this manner, they will feel more inclined to dis-identify with a trajectory toward full-participation in that community (Farnsworth, Kleanthous & Wenger-Trayner, 2016).

However, though the production of meaning within a community is an important aspect of belonging, adopting meaning is in itself an essential element of practice. In order to adopt meaning and thus learn from the community, members require authentic access to engagement in participative and reificative aspects of practice (Wenger, 1998). This requires opportunities to interact with others in the course of their own engagement and to gain access to the full reificative paraphernalia of the

community in the course of its use i.e. tools, language, documents etc. A lack of access to either Wenger (1998) argues, results in an inability to learn. It has however been argued that Lave and Wenger's (1991) theorising fails to offer substantiating, empirical evidence particularly of how power operates in the social relations between newcomers and 'old timers' (Johnston, 2016).

Johnston (2016) was able to demonstrate numerous ways in which the power differential in a community of teachers had the capacity to limit participation and hinder learning. Established teachers were demonstrated to show a lack of commitment to supporting student teachers due to competing time commitments. Students consequently felt that their presence in the community was merely something for host teachers to endure. A reluctance for host teachers to help, left students choosing to manage problems alone, denying themselves access to potential resources for support. The emotional toll of feeling like a burden made many re-evaluate their trajectory and one left teaching entirely. Students felt there were instances where trust and respect between themselves and their host teacher was compromised leaving them to feel powerless, such as when their host teacher would undermine their practice in front of pupils - challenging their authority and credibility, contributing to feelings of peripherality. Many host teachers showed reluctance to let student teachers lead classes in the run up to exams insinuating to students they had a lack of trust and confidence in their skills. The resultant lack of contact time with pupils left student teachers unable to develop a strong repertoire of teaching approaches. Roberts (2000) argues perceptions of power, and its use, impacts the degree of trust that exists among those engaged in practice, but argues that trust, familiarity and mutual understanding facilitate openness and are thus prerequisites for the successful sharing of tacit knowledge. Relatedly, in the latter half of this chapter, when the ideas of Vygotsky are introduced it will be argued that interpersonal relationships lay the foundations for effective learning relationships (Tobbell and O'Donnell, 2013b). In this instance, student teachers were not only denied necessary teaching experience, but the lack of mutual trust and respect meant ownership was removed from them causing them to feel powerless within the community, limiting their confidence to ask questions, take risks and become the kind of teacher they hoped to be (Johnston, 2016). Evidently, though mutual engagement in the pursuit of a joint endeavour is a necessity to ensure the longevity of a community of practice, relations between members are not exclusively benevolent. What is best for the community, is not always seen as being best for oneself, and where this is the case, implicit practices that risk marginalising newcomers may perpetuate the community.

Johnston (2016) citing Baumeister and Leary (1995) argues that the need to belong is a fundamental human motivation and that denials of this need lead to significant anxiety, stress and diminished performance. In the example for student teachers for instance, being made to feel like an unwanted guest inhibited students from developing the confident, reflective teacher identity that would enable

them to make the most of their placement opportunity. Wenger-Trayner (2016) does however recognise the impact of belongingness on identity, but also highlights the empowering nature of identification, arguing that where a community member feels a strong sense of identification with the competence of a community, then rejection such as that outlined thus far will be a painful experience, but where an individual does not identify with their community they can maintain a sense of agency (Farnsworth, Kleanthous & Wenger-Trayner, 2016). The extent to which something has power over a person, Wenger-Trayner argues therefore, depends on how much that person identifies with it.

Wenger-Trayner theorised that identity, in addition requires the negotiation of identification across multiple CoPs (Farnsworth, Kleanthous & Wenger-Trayner, 2016). Handley, Sturdy, Fincham and Clark (2006) suggest that the capacity of individuals to compartmentalise their identity and behaviours according to the community they're currently 'in' whilst trying to maintain a coherent sense of self is however a difficult task to achieve. They propose that individuals maintain a sense of agency through adopting different forms of participation and identity within different communities which can generate tensions within the individual and can result in instabilities within the communities in which they participate. The dynamics between identity development and forms of participation are therefore a key influence to the way in which a person will internalise, challenge or reject the existing practices of their community. Where a newcomer is expected to adopt a certain role, which conflicts with their sense of self, they may elect to accept a marginal form of participation in order to avoid compromising their sense of self and to maintain a sense of agency (Handley et al, 2006). Alternatively, they may adapt their practice just enough to notionally fit in with community norms "exemplifying a contingent form of participation", or indeed they may even choose not to join the community of practice at all (Handley, Sturdy, Fincham and Clark, 2006).

The Zone of Proximal Development

Encounters between generations where practice is passed on and transformed, Wenger (1998) argues, are the elements of practice that are most typically understood as learning. The psychological process of how this learning takes place however remains somewhat unclear. Though CoP theory demonstrates the importance of identity, practice and participation, it fails to fully theorise the process by which these practices are actually learned. Vygotsky's (1998) Zone of Proximal Development (ZPD) however offers a theoretical explanation as to how individual learning occurs through social exchanges and the internalisation of knowledge. In a CoP a member must identify and perform the valued practices of the community. But to learn new practices it is necessary for the learner to negotiate enabling learning relationships with others who have a better understanding of the practice. Through such learning relationships, the more knowledgeable other may then assist the

newcomer to pass through their ZPD for a given practice, ultimately enabling them to learn how to perform the practice independently. Thus, without enabling learning relationships it is impossible to successfully participate in a CoP (Tobbell and O'Donnell, 2013b). This necessity of strong learning relationships for placement learning specifically, was identified earlier in the literature review in research that highlighted the importance of the relationship between placement students and their workplace supervisors. It is necessary therefore to additionally underpin sociocultural analysis of the student placement experience with the work of Vygotsky. The focus is placed specifically on Vygotsky's concept of the ZPD in particular as it "constitutes one of the few theoretical resources which deconstructs the learning process for the individual" (Tobbell, 2006, p72) and thus offers a powerful tool to understand learning (Wass and Golding, 2014). This is an aspect of Vygotsky's learning theory that has been used successfully in past academic research to understand adult learning, despite originally being developed for use with children.

In the context of the current study, the concept of the zone of proximal development (ZPD) is drawn upon to theorise the interactive nature of participation in the placement community and to highlight the importance of attending to learning relationships when seeking to understand the process of learning on placement. The concept of the ZPD offers a means to analyse the mechanisms by which interactions and relationships formed in the workplace facilitate (or hinder) students in internalising the knowledge and performances of their placement community's valued practices, in the course of mutual engagement.

Vygotsky (1978) suggested the process of learning to involve two developmental levels – the actual developmental level (that which a person is independently capable of) – and the level of potential development (that which they can do when working under guidance or in collaboration with more capable others). Traditionally in education, independent performance is treated as the best indicator of an individual's capabilities. Where a person can complete a task or solve a problem without assistance, they are deemed competent, but where they require help, their performance is considered less of a reflection of their actual capabilities. But Vygotsky (1978) suggests, that which can be done with assistance, is in some sense a greater indicator of mental development than that which can be done alone.

To demonstrate this point Vygotsky cites an example of two school children, both aged 10, and both of whom can perform tasks to a mental age of eight, he questions whether these two children are the same mental age, and the logical answer is yes, both can independently deal with tasks up to the degree of difficulty that is standardised for the typical eight-year-old. However, if both of these children were then shown ways of dealing with various problems, and with assistance and one 8-year-

old can solve problems up to a standardised 12-year-old level, where the other can only solve problems when assisted up to a standardised nine-year-old level, then these two children could no longer be deemed the same age mentally. This difference is referred to as the zone of proximal development. It is the difference between actual development and the level of potential development. The actual developmental level Vygotsky suggests regards the end products of development. Where a person can perform something independently, they have developed the functions for that performance. The ZPD however regards the functions that have not yet developed but are in the process of maturation.

In the context of work placements, the ZPD can be understood as the distance between the placement students' unaided performance when participating in workplace practices and that which they may achieve on placement when helped by others, such as their long-serving colleagues or their more knowledgeable peers (including potentially, fellow placement students).

The concept of the ZPD has important implications for understanding the placement learning experience as it reinforces the significance of workplace relationships in learning. The contribution of learning relationships and the type and amount of support they afford should be in part determined by the placement students' ZPD for any given task (Fleming and Haigh, 2018). The extent to which a given placement students' colleagues and peers seek to uncover their current capabilities, and their requirements to pass through the ZPD therefore, becomes an important area to attend to when analysing the process of learning on placement, and the nature by which this learning process is helped or hindered by the behaviours engaged in by fellow community members.

It is not however, only the amount and nature of guidance which should be determined by the ZPD, but the nature of the task itself. Work placement tasks which are geared toward learning that has already been achieved will be ineffective, as will tasks that are too far beyond what the student can achieve even with assistance. Returning to the example of Valle and Weiss's (2010) study of graffiti artists, it was explained that graffiti artists progress in skill. Their art begins with 'tags', then 'bombs', then '3Ds' and finally 'realistic pieces'. A tag is fast and easy and with practice can almost become automatic. Realistic pieces in contrast require expert skills applied in a way that accurately represents an object, person or animal with a mastery of matters of proportion, detail and shadows (Valle and Weiss, 2010). Thus, if an accomplished graffiti artist attempted to help a mid-level artist improve their skills, teaching focused on producing a tag would be too simple to produce learning. For the mid-level artist, the tag might already be produced with such ease that it is almost automatic. Relatedly, an expert trying to teach a novice to do a realistic piece would again likely fail to produce positive outcomes, as the newcomer has not yet mastered the stages in between. They must incrementally

build up to producing a realistic piece, it would not yet be in their ZPD and as such they would not be able to produce it even with guidance.

Applying the concept to higher education, Wass and Golding (2014) explored how a student could be supported to pass through the ZPD to develop the skill of critical thinking in the context of a zoology course. If Zoology students were presently unable to evaluate claims based on theory and reasoning, Wass and Golding suggest, they can be taught to do so with assistance through the provision of guidance. But key to this process is that the teacher assigns a task that lies within the ZPD – a task which can be achieved, but only with assistance. To assist students in passing through the ZPD for critical thinking, they recommended the use of scaffolding. Scaffolding is a concept first coined by Wood, Brunner and Ross (1976) whereby students are provided with support, prompts, directions and resources in order to enable them to achieve a task that would be otherwise beyond their abilities, and as the learner masters each element of their task, support is gradually tapered to gradually transition responsibility of the performance from teacher to learner. A zoology teacher might, they suggest, scaffold students to evaluate scientific claims by offering them questions such as ‘what evidence supports the claim, is there evidence to the contrary’? As students frequently attempt to address questions such as these, they will eventually learn to use this line of thinking themselves in similar scenarios that require critical thinking in the future. Wass and Golding stress however that there is a difference between scaffolding learning and simply structuring it, as the latter would help the students complete the task but would not allow them to learn from it. If zoology students for instance, were asked to evaluate a scientific claim by simply reading an article that provides a critical argument in relation to the question, the student would then be able to evaluate the claim and offer evidence, but they may still be unable to understand why, or complete a different task based on critical evaluation in the future. Through use of the article they would not have learned to form their own evaluation. A learner must thus be assigned tasks that they can only complete with assistance but should not in the process be offered too much assistance. They should receive only enough help that they may handle the challenge, but not so much that the challenge is removed (Wass and Golding, 2014). The implication of this for analysing placement learning is that it highlights the importance of facilitators of placement learning building some awareness of the incoming students’ current capabilities to ensure the tasks they are set are the correct balance of challenging yet achievable. As the student progresses on placement, the nature of the work to be assigned must also progress in complexity in recognition of the fact that what was once challenging to the student will no longer be as difficult as they gradually progress through the ZPD for that task. When analysing placement learning experiences therefore, attention must be paid to both the nature of workplace tasks, and the nature of scaffolding the students are offered as they progress through the ZPD.

To offer further insight into the process of learning in the ZPD, Tharpe and Galimore (1988) expanded on the concept by dividing it into a journey which requires four stages. In the process of passing through each of these stages of the ZPD, the individual learns to gradually transition from relying upon social regulation to self-regulation, ending with independent performance.

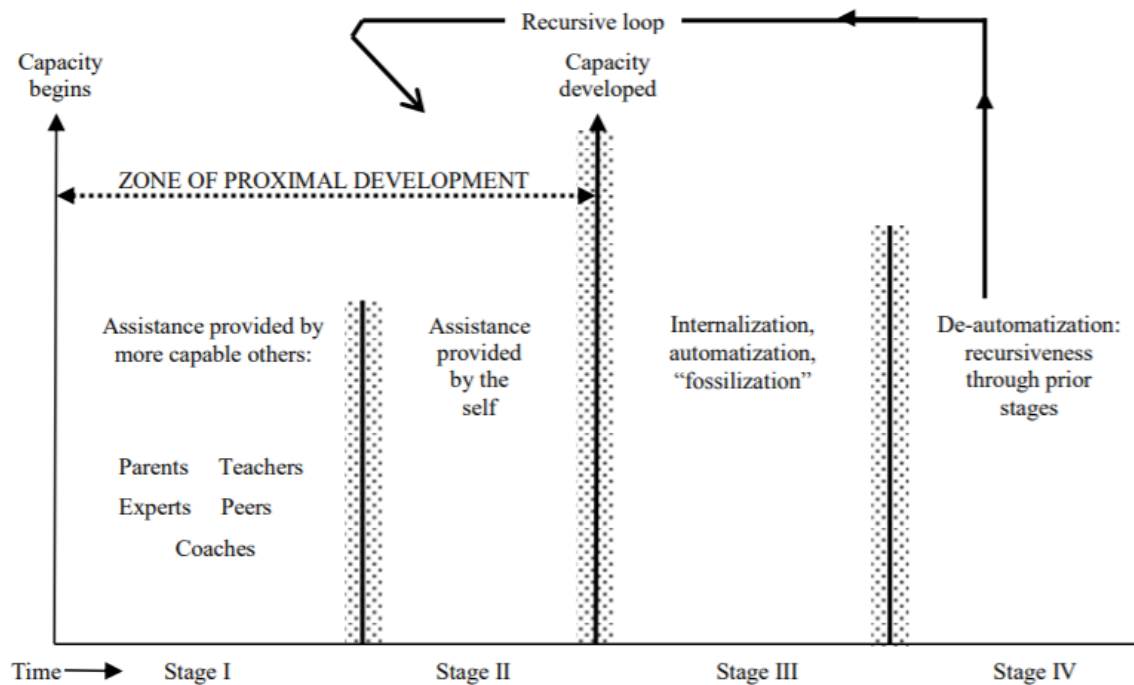


Figure 1: Genesis of a performance capacity: Progression through the ZPD and beyond (Tharpe and Gallimore, 1988, p35).

Stage one: Before an individual can function independently in a given task, they are first reliant on capable others to help regulate their learning. The nature of the level of help needed can vary as a function of multiple factors including the requirements of the task, and their current progression through their ZPD for that given activity. During the period in which the ZPD is newly formed for a given function, an individual will likely have a limited understanding of what is to be achieved, they will require guidance from more knowledgeable others, whether they be teachers, parents, friends, employers, they may receive directions or opportunities to model the correct behaviour. With time the learner comes to understand how elements of the activity in question relate to each other and what the performance means. The learner can then be assisted through means such as questions and feedback or scaffolding whereby the difficulty and nature of the task remains constant, but the level of assistance provided to enable the learner to carry out the task is gradually adjusted. Throughout the ongoing interaction, goals and sub-goals may shift in response to the educator's assessments of the learner's performance, and on the learner's behalf, the goals may shift in response to their own

growing intersubjectivity. Characteristic of stage one is the gradual decline in the 'teacher's' responsibility for the task and a corresponding increase in the learner's responsibility. In this gradual transfer of responsibility, the learner can begin to manage the structure of the task and the level of help they obtain, by directing the assistance they gain through asking questions. Stage one is complete once the responsibility for tailoring task assistance, transfer and performance is handed over to the learner.

It is possible to offer an example of learning in this stage by returning to Cope, Cuthbertson and Stoddart's (2000) study of nurses on placement. During their placement, the nursing students were suggested to have been coached by mentors who demonstrated correct practice and provided support which was gradually withdrawn as the nurses became more competent. One means by which the students were supported was through the ongoing presence of mentors who were willing to step in on procedures should anything unexpected happen. On other occasions the nursing students were offered chances to do a dry run in preparation for using the technique on a real patient. At other times support was offered in the format of pointers whereby a mentor would draw a student's attention to a salient feature of the case which they had overlooked. With time, support such as this was gradually withdrawn to enable the students to gradually take more responsibility for their task as their competence and confidence grew.

Stage two: In the transition to stage two of the ZPD the learner has now begun to carry out their task without assistance from others, but importantly, the performance is still not fully automatic at this point. The learner in this stage uses self-directed speech to guide their own behaviour. That which at one point had to be vocalised by someone else, is now vocalised by the learner.

Stage three: Following the stage of self-regulation, the learner can be considered to have emerged out of the ZPD and into the developmental stage for that task. At this point the execution of the task is smooth and integrated. It has been internalised and is now automatic. Assistance is no longer required either from the self or others. Performance at this point has developed, it is fossilised.

Stage four: Lifelong learning is a sequential process of transitioning from externally regulated assistance to self-assistance. At any given time, a person will be experiencing external regulation, self-regulation and automated processes. But once a certain task is mastered, the learner does not have to rely solely on internal mediation, they can still request help. During particularly difficult period a learner may once again seek out the assisting vocalisations of others. The relationship between external control and self-control can once again shift. Even the most competent of people can still benefit from the regulation of others to enhance or maintain their performance. But a person can also experience de-automisation, and this can occur so regularly that it forms the final stage of the ZPD.

During a period of de-automisation what a person could once do, they no longer can. This may result from stress or changes in a person's environment, physical trauma or emotional upheaval. For capacity to be restored the developmental process must recur. To begin, the learner must return to their prior self-regulation. Through talking oneself through a problem, often the capacity to perform will return. Where it does not, recalling the voice of someone who previously helped can also be effective. In some cases however, no amount of self-regulation will suffice. In this instance the learner will have to retreat to external regulation, so that they may re-proceed through assisted performance to self-regulation, to exit the ZPD to form a newly automatised performance. The problem however is in gaining access to a patient, responsive 'teacher' from whom to gain assistance.

Tobbell and O'Donnell (2013b) argue relationships to be inextricably embedded in all learning and development, and as such the formation of interpersonal relationships, they argue, necessarily precedes the emergence of successful learning relationships. It is therefore important to attend to opportunities for relationship formation, and the quality of said relationships, as a prerequisite for learning relationships when examining the process of learning (Tobbell & O'Donnell, 2013b). Tobbell and O'Donnell argue that an essential aspect of the ZPD is that it emerges as a function of the interpersonal relationship between 'teacher' and learner. Citing criticisms put forth by Hoogsteder, Maier and Elbers (1998), they note where past efforts to determine the appropriate actions of teachers in assisting learners in passing through the ZPD have neglected to consider that learning involves the learner as much as it does the teacher, it is a collaborative endeavour that requires negotiation between the two. Tobbell and O'Donnell therefore argue that an effective learning relationship is one where both teacher and learner work together to enable learning, and in that sense the learning relationship is one which is distinct from other interpersonal relationships as its purpose is to enable the learner to pass through the ZPD. It is important to note however that though the process of learning in the ZPD must involve reciprocity on the part of both the teacher and learner this reciprocity is not inevitable. Some learners, Duphny and Duphny (2003) suggest, are not yet ready to accept help, or may try to ignore or limit the help offered by others. The expert in addition may not always want to pass on responsibility to the learner, they may seek to maintain control of the task even when the learner knows what is required (Duphny and Duphny, 2003). As such, Duphny and Duphny argue, good teaching/training requires a dynamic process involving an unfolding relationship between expert and learner. The guidance given must be relevant and valuable, and the increasing competence and independence of the learner must be valued and enhanced. As competence increases, the learner should progressively be viewed as an equal and thus learning should involve an evolution in the teacher-learner relationship.

Synthesising the Theories

A synthesis of the central tenets of Communities of Practice Theory and Vygotsky's ZPD enables the development of a sociocultural framework from which to understand the mechanisms of learning on placement. From this framework learning is situated in the context of participation in the social practice of the placement community. This participation is positioned as a fundamental process by which meaning is negotiated and identity is developed which in turn shapes learning and individual trajectories. Though initially peripheral, partial participation may advance toward full participation as a consequence of identifying and performing the valued practices of the community. Participation however is not an inevitability and requires access to authentic practice, and opportunities to both adopt and contribute to practice which is not always granted. The progression toward full participation also requires opportunities for mutual engagement from which effective learning relationships must be established. How effective these learning relationships are in enabling students to pass through the ZPD in their performance of workplace tasks is positioned as being dependent on the active role of the learner and their willingness to engage, their interactions with their colleagues and the nature of the support and guidance they receive, the appropriateness of the tasks they are assigned, and the role that the structure and wider culture of the community plays in ensuring these relationships are conducive to supporting the learning of valued practices.

The following table summarises the contribution the theoretical ideas, used in the current study, add to facilitate an analysis and understanding of the process of learning on placement.

Theory/Theoretical Concept	Ontological Assumption	Theoretical Contribution
Lave and Wenger's Situated Learning/Communities of Practice theory	Learning involves a process of becoming which requires increasing access to expert performances within a given community of practice. Learning is contingent upon participation in the valued practices of the community and identity is shaped by this participation. Access to ongoing activity, mutual engagement with other members, and information and resources are fundamental to participation.	An understanding of the practices in which the placement students and fellow community members engage, and the processes underpinning how these practices shape learning and identity development.

Vygotsky's – Zone of Proximal Development	Learning involves socially situated, collaborative activity between the learner and more knowledgeable others. This process requires an understanding of the learner's current capabilities and requires reciprocity on the part of both the learner and the 'teacher' to enable the learner to pass through the ZPD.	An understanding of the role that previous knowledge and experience, and social relationships play in the process of placement learning.
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Table 2: Theoretical Contribution Summary

Study Aims

As was demonstrated in the former chapter, much of the existing work placement literature is quantitative, geared toward measuring facets of the placement experience by using statistical analyses and survey instruments. Consequently, little is known about the nature of the work placement experience, the meanings students construct as they experience it, and the process of learning it entails. Where research has looked beyond outcomes to explore some aspect of the qualitative experience of placements, it is largely descriptive, and as such is limited in its ability to theorise and explain how learning on placement actually happens. Though a limited number of studies have analysed the placement learning experience based upon theorised notions of learning, they are few and far between. It is my intention with this study therefore to contribute a theorised research project, focused in the area of work placements which not only describes, but explains the mechanisms underpinning the process of learning on placement. Given the fundamentally situated nature of work placements, and evidence from past research which has demonstrated the value of sociocultural theory for exploring placement participation, I would therefore argue the application of the sociocultural framework developed in this chapter is both necessary and valuable in facilitating an analysis of the psychological mechanisms underpinning placement learning.

With this research project I therefore aim to apply a sociocultural theoretical framework to the understanding of placement learning, whilst contributing new theory driven knowledge to the work placement literature.

Earlier it was argued that participation in practice fosters learning and identity development, and underpinning this process is the negotiation of meaning which entails both interpretation and action. It is not just the act of participation but the way it is subjectively interpreted that determines what

meanings are formed from the experience: how a person comes to understand it, what value it is ascribed, what impact it has in shaping identity and how a person will choose to respond to it in terms of the actions they choose to take. It therefore follows that the ontological assumption underpinning the current research project is that learning and identity arise through participation within a socially and culturally constructed world, and it is through this participation that people form the meanings that construct their psychological reality. I would thus assert that in seeking to explain the psychological mechanisms underpinning the placement learning process it is necessary to focus on the meanings students form as they experience participation in the course of their placement. This will require a research approach from which I may gain insight into the experience of placement as it is subjectively perceived by students.

I therefore aim to explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.

Further, based upon the arguments outlined in Communities of Practice Theory, I would additionally argue that an examination into the process of placement learning also necessitates a focus on identity. Communities of Practice Theory places the negotiation of meaning at the core of human learning (as opposed to the simple acquisition of knowledge). And the process of becoming a certain person in a social context was demonstrated earlier to be a central drive for the negotiation of meaning, hence from this perspective learning and identity are inextricably linked. Identity therefore is a central concept of community of practice theory – it is a position from which learning cannot be separated from the becoming of the learner. Identity it was argued is shaped by and shapes community membership. Both participation and non-participation are contingent upon the extent to which someone identifies with a practice. And learning through participation offers new opportunities for meaningful identification, identity in turn engages and influences a persons' propensity and ability to learn. The negotiation of identity entails a whole series of participatory experiences over time that contribute to the formation of trajectories of identity that exist both within and across communities. Identity therefore does not only encapsulate experience but also future aspirations. The identity trajectory of a student on placement will therefore mediate participation and thus learning. To fully understand the process of learning on placement then, also requires a focus on identity - both how it contributes to, and shifts as a consequence of, learning through placement participation.

Thus, with this research I also aim to analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.

Participation is a central tenet of Communities of Practice Theory. To successfully participate in the practices of the community requires of a learner the ability to communicate in its common language, and to operate in accordance with its values and norms. It requires interaction not only with other people, but also with the artefacts and shared resources of the community in addition to access to opportunities to participate in legitimate practice. Operating within the valued practices of the community shapes the way in which members learn and this becomes a source of identity. Where participation in the valued practices is enabled, the member will have access to resources from which to build their understanding through their increasing involvement in the community. They will have opportunities to engage with others and exchange ideas and where beneficial shape new practice. When participation is disabled however the learner risks marginalisation. The practices which serve to enable or disable participation then, are also of key importance for understanding the psychological mechanisms that underpin the placement learning process.

Hence the final aim of the study is to explore the emergent practices which serve to enable or disable learning on placement.

In summary the aims of the study are as follows:

1. To apply a sociocultural theoretical framework to the understanding of placement learning, whilst contributing new theory driven knowledge to the work placement literature.
2. To explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.
3. To analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.
4. To explore the emergent practices which serve to enable or disable learning on placement.

Chapter Three - Method

In this chapter I describe in detail the method employed in the study of students' placement experiences. More specifically, the process of designing the project, selecting and recruiting the student sample, and collecting and subsequently analysing the data is discussed. Throughout, the rationale behind each of the methodological choices made is explained, including an explanation of the theoretical and philosophical assumptions that informed these decisions.

A Qualitative Approach

In the previous chapter a conceptual framework was outlined for understanding placement through a sociocultural lens. And I explained that the ontological assumption underpinning the current research project is that learning and identity arise through participation within a socially and culturally constructed world, and it is through this participation that people form the meanings that construct their psychological reality. This includes what they believe and understand about the world and their own place within it, their perceptions of who they are and what they know and what this means in both the grand scheme of things and in everyday life. To explore these beliefs, requires a qualitative approach to research.

Certain features of some research topics are particularly suited to the use of qualitative methods. A qualitative approach is of value where there is a need to provide a greater understanding of the nature of the phenomenon, where aspects of the phenomenon are deeply set in the participants' personal knowledge and understandings of themselves and where the subject matter can be considered complex, requiring participants to take time to reflect upon the issue and their own thinking in relation to it (Ritchie and Ormston, 2014). A qualitative research approach is thus a necessity for exploring the nature of placement learning and the complex meanings students form in relation to their experience.

Interpretivism

Underpinning this qualitative exploration is an interpretivist epistemology. Interpretivism emerged as a challenge to assumptions associated with positivism such as the notion that value free data may be obtained in research and that natural scientific methods should be applied in the study of social phenomena. From the perspective of a qualitative researcher, people's actions are always meaningful and by engaging with these meanings it is possible to generate deep insights into both social and psychological processes (Willig, Stainton Rogers and Rogers, 2017). In much of the existing placement literature, many studies are not focused toward exploring meanings in this way and as such few insights have been generated into the processes underpinning placement learning thus far.

Reality as we know it, from an interpretivist position is assumed to be constructed intrasubjectively and intersubjectively through the meanings and understandings that we acquire from the social world (Angen, 2000). Because a person cannot be separated from what they know, their subjectivity forms an integral part of the way in which they understand themselves and the way that they understand other people and the world around them. This is also true of both the participant and the researcher. Methodological decisions and analytic interpretations of participant accounts are always mediated by the researcher (Willig et al, 2017), a researcher's values are therefore an inherent aspect of the research (Angen, 2000). Smith and Worsfold (2013) for instance explored student satisfaction in relation to the placement experience through the application of quantitative surveys. This suggests an underlying assumption that it is possible to discern something meaningful about the placement experience by confining student responses to pre-determined categories. Methodological decisions in the current study in contrast were influenced by the belief that participants should be offered the flexibility to share the meanings they formed in relation to their placement without constrictions imposed by the researcher in order to enable the potential for unexpected insights. Likewise, when determining the most appropriate method(s) of data collection to meet the study aims, a belief that research should uncover meaning led to the decision to use a pluralistic method of data collection, based upon the notion that it is possible to combine methods in a way that can offer a more nuanced interpretation of meaning than the use of one method alone.

Methodological Pluralism

Based on the ontological assumptions underpinning this research, arguably the most appropriate method for meeting the study aims would be the ethnographic method. Data collection in an ethnographic study typically involves the researcher's participation in the daily lives of their participants over an extended time period and includes the use of interviews, the gathering and analysis of documents and artefacts, and more generally gathering whatever data is available where appropriate for shedding light on emerging issues (Atkinson and Hammersley, 2007). Given that the context of this project is a three-year thesis without external funding which focuses on a geographically dispersed sample, it is not within the parameters of the study to conduct situated participant observations of the students on placement as would be expected in a traditionally ethnographic study. However, as will be argued, there is value to retaining a somewhat pluralistic approach to data for meeting the study aims.

Chamberlain, Cain, Sheridan and Dupuis (2011, p152) ask "if we are, as Akiko Busch (2005) tells us, living in an age of pluralism, then why is it that so much qualitative psychological research effort does not reflect this?" In part they argue this is due to an unspoken demand for a specific, identified and

defined methodology and its imposed constraints. But the use of a single method seldom does justice to the complexities of social science research (Chamberlain et al, 2011). Methodological pluralism refers to the deployment of at least two qualitative methods to analyse the same data set in a single research project (Barnes et al, 2014). The use of multiple methods can provide a pluralistic data set which offers different takes on a topic and provides greater opportunities for new insights, it can deepen and extend the data, providing a richer insight with an extended scope (Chamberlain et al, 2011). Different methods offer different strengths, and limitations (Lamont and Swindler, 2014). Whilst methodological pluralism can assist in addressing the complex issues raised in the social sciences, the methods selected must be chosen carefully based upon how well they can contribute to meeting the study aims and how well they fit as a whole. The selection of methodological approaches to be combined must therefore be determined by the questions being pursued and must be assessed on a case by case basis (Lamont and Swindler, 2014).

The methods of data collection combined to meet the aims of the current project were semi-structured interviews and a Facebook group. A rationale for how this combination of methods contributed to meeting the study aims, follows.

Facebook Group Rationale

In the previous chapter learning and identity were positioned as processes which constantly evolve in the face of ongoing experience. In the words of Wenger (1998 p158):

“The temporal notion of trajectory characterizes identity as:

- 1. A work in progress*
- 2. Shaped by efforts - both individual and collective - to create a coherence through time that threads together successive forms of participation in the definition of a person.*
- 3. Incorporating the past and the future in the experience of the present*
- 4. Negotiated with respect to paradigmatic trajectories*
- 5. Invested in histories of practice and in generational politics”*

Given therefore, the fundamentally temporal nature of learning and identity, it was necessary to identify a method of data collection by which ongoing contact could be maintained with the study participants as they experienced their placement, so that I might meet the second and third aims of my research to explore their negotiation of meaning, and shifts in identity, as they occurred. In Baker’s (2013, p134-135) research on transition, Facebook was demonstrated to offer a consistent and reliable communication tool for maintaining research relationships, during a period in which participants were experiencing “personal, social and academic upheaval across time and space”. This

would indicate that Facebook might be a means by which to maintain contact with placement students who as a result of their circumstances would inevitably be geographically dispersed during the course of the research project. Baker suggests that Facebook facilitates communication through the documenting services of email in addition to a real time chat facility. The instant messaging function Baker (2013) argues, offers the opportunity for synchronous communication where both the researcher and their participant are online simultaneously. This allows for communication which is more interactive and more like face-to-face interviewing. The messaging service in contrast functions asynchronously and thus offers participants an opportunity to carefully consider their response in terms of what they choose to share and how. Due to the transient and disposable nature of instant messaging Baker argues, the asynchronous messaging function allows for the collection of more detailed data collection of the two.

King, O'Rourke and Dellongis (2014) stated that the sheer size of Facebook, its omnipresence and its increasing integration into day to day life, means there is a growing potential for its use in directly appealing to prospective research participants. Part of its value they argue, lies in its potential for enabling targeted recruitment requests and offering access to study participants who might otherwise be hard to reach. They suggest to make the most of the advantages of the use of social media in research, it should be the tool used for both recruitment and online data collection. Where both recruitment and data collection are conducted on social media, an advertisement for recruitment can be used to direct participants straight to the study, before interest subsides (King et al,2014). In addition, Kosinski et al (2015) argue in relation to recruitment, that although the population of Facebook is not necessarily representative of the wider population, as users tend to be younger and some groups might be entirely excluded, the sheer size of its population means that even under-represented groups should remain relatively large. King et al (2004) argue further, that online recruitment and data collection allow participants to make participation decisions with less pressures than might occur in face-to-face research.

There are however pragmatic issues which must be considered when deciding whether to use online research. According to Kosinski et al (2015) for example, the use of Facebook in research does not necessarily require substantial changes to existing research procedures, but greater care will be required to optimise the experience for participants, due to the increased ease with which online studies can be abandoned. Beneito-Montagut (2011) in addition, claim online research requires a technologized researcher to ensure that they are familiar with the technology they have elected to use. Likewise, Kosinski et al (2015) argue there is no substitute for personal experience with the platform and as such the researcher should be/become an active Facebook user.

Thus, while the use of Facebook would appear to offer an effective avenue for recruitment and for the collection of contemporaneous data, it is necessary to carefully consider issues with regard to design, to ensure that it remains an appropriate method to meet the study aims:

1. To apply a sociocultural theoretical framework to the understanding of placement learning, whilst contributing new theory driven knowledge to the work placement literature.
2. To explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.
3. To analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.
4. To explore the emergent practices which serve to enable or disable learning on placement.

For the reasons outlined thus far I would argue that to enable the capture of the meanings students form in relation to their placement participation, to uncover the practices they believed to have been influential to their learning, to explore their shifts in identity and to gather data from which sociocultural understandings can be generated, requires a method of data collection which produces qualitatively rich data, that is contemporaneous in nature and which offers insights into the social experience of placement participation and the meanings students form in relation to these experiences. I thus elected to create a closed Facebook group, which computing and engineering placement students from the target university could choose to join. Questions aimed toward exploring the placement experience were put to the group on a fortnightly basis which they could answer at their own convenience. This method of data collection continued for 15 months and included the students initial return to university. Facebook was selected as the medium for communication based upon the assertions of past researchers who have found it to be an effective means of maintaining contact with a geographically dispersed sample. The questions posed were open, to facilitate the capture of detailed data, and reflected the sociocultural ontological assumptions underpinning the study and thus explored placement participation as a socially and culturally embedded experience. Designing this element of data collection to continue for 15 months enabled an ongoing exploration of meaning making and evolving identity throughout the course of placement, but it also enabled the capture of the return to university, a decision underpinned by past research findings which have emphasised the return to university as being an important aspect of the placement journey e.g. Auburn (2007). I elected to use a group as opposed to direct messages both for convenience and to keep users engaged with the project. Posting a question once to the group as a whole offers a more efficient means of contact than multiple direct messages, and each time a question was posed group members could see one another's replies and thus keep up with the placement experiences of their

cohort, which I felt might potentially encourage participants to keep returning to the group to combat the issue highlighted by Kosinski et al (2015) regarding easier drop out. I also wanted the research to offer value to the participants to make their participation worthwhile and so I offered students opportunities to capitalise on the group format and ask their own questions of each other, though none did. Evidently private messages would offer greater anonymity, however issues of anonymity were easily countered as the group was 'closed' so only fellow members could see responses. Where a student desired greater anonymity they could create a new research-only profile without identifying information, or they could privately request to direct message instead.

Before data collection began, I gained access to university affiliated Facebook groups from which I planned to recruit and was able to verify that large numbers of the target sample were members of Facebook and would thus have easy access to the group. At the time the research took place, Facebook had numerous features that would additionally facilitate its use in the project including: the ability to make closed groups which would provide a level of anonymity to group members, administrator functions which meant only the researcher could choose who entered the group and could control the posts of group members (such as if a post needed to be deleted should a participant not follow the rules surrounding group etiquette), and the ability to view who within the group has seen posts - facilitating the monitoring of engagement and ensuring important information such as the group rules were viewed by all. Being a long-standing user of Facebook, it was a platform with which I had enough familiarity to know how to create and run the group from a technical standpoint to meet the needs of the research.

Though research outlined above has suggested Facebook can provide a representative sample. Lunnay, Borlagdan, McNaughton and Ward (2015) caution that when using social networking sites to conduct research, those without internet access are denied an opportunity to participate. In addition, accessibility does not necessarily equate to ability, limited accessibility and digital literacy they suggest can serve to exclude, reinforcing existing inequalities (Lunnay et al, 2015). Given that the participants comprising the sample of the current study are university students who have already successfully completed two years of UK undergraduate study, their digital literacy and internet access is almost inevitable. It is unlikely many students could navigate the practices required in higher education without such resources. Even with access and ability however, many potential participants were likely not Facebook users despite reports of its popularity. Where this was the case, opportunities to participate in interviews offered an alternative route to participation, providing further support for an argument in favour of methodological pluralism.

Interviews Rationale

Online research respondents have been shown to contribute shorter responses than face to face respondents (Lijadi and van Schalkwyk, 2015). This has the potential to be problematic as the meanings students form from their experience, their perceptions of practice and their evolving identity are complex phenomena, the exploration of which requires rich, detailed data. As such it is important to mitigate this risk. Similarly, though qualitative research has the potential to offer insights into phenomena that are deeply set in participants' understandings of themselves, to do so has been argued to require responsive questioning (Ritchie and Ormston, 2014) and as I will demonstrate in the later 'data collection method' section, though happy to respond to the fortnightly questions, respondents rarely replied to follow ups and probes. Yeo et al (2014, p178) however suggest that interviews are "a powerful method for generating descriptions and interpretations of people's social worlds".

Wenger in addition characterised identity as a work in progress which involves ongoing efforts "to create a coherence through time that threads together successive forms of participation in the definition of a person". The evolution of identity in response to placement participation is thus an ongoing process that does not end upon returning to academia. Students must continue to make sense of their experience and how it relates to their current trajectory. Interviews provide detailed subject coverage and an opportunity for a detailed exploration of each participants' individual perspective, but they can also be useful in setting these perspectives in the context of a personal history of experience (Lewis and McNaughton Nicholls, 2014). The use of interviews would thus also enable insights into this reflective process of meaning making. As such to meet the study aims it was necessary to supplement the breadth of contemporaneous data gathered through the social media group with the detailed, reflective insights that interviews afford.

Tracy (2013) states that interviews are interactions that are underpinned by a purpose, and the nature of this purpose has consequences for the way the interview should be structured. Structured interviews, typically involve an interview schedule which is strictly adhered to. This form of interview, she argues, are advisable when the research purpose is to compare and contrast data across a large sample. However, highly structured interviews lack flexibility and depth. Semi-structured interviews in contrast, are more flexible and organic (Tracy, 2013). Though often still involving an interview guide, this guide is less structured, its purpose is to stimulate discussion as opposed to dictating it and as such, interviewers can be more adaptive and rescind some of the control over the discussion to the participant. Interviews of this nature allow for the generation of more emic, emergent understandings

(Tracy, 2013). Less structured interviews enable a focus on topics that emerge as being most interesting and potentially important facilitating the collection of more complex data (Tracy, 2013).

There is however, a debate with regard to what can be claimed of interview data. Yeo et al (2014) suggest that the different traditions in qualitative research have contributed to a diversity of perspectives on interviewing. In particular, debates centre around to what extent knowledge is constructed within the interview or is pre-existing. Citing Kvale and Brinkman (2009 p48) they describe two perspectives. In one, the interviewer uses the interview as an interaction from which they acquire and access participant's pre-existing knowledge. This perspective they argue falls within the positivist or post-positivist paradigm, where knowledge is viewed as waiting within the participant to be unearthed, the interviewer's role is to uncover this knowledge "unpolluted" by leading questions. Researchers aligned with the positivist paradigm thus ascribe importance to conducting a 'pure' interview which is intended to reflect the reality of the social world (Silverman, 2004). From the second perspective knowledge is viewed as something which is created and negotiated in the context of the interview, with both the interviewee and researcher actively participating. The researcher therefore contributes to the development of meaning and the interview holds the potential to be transformative for both parties, this they argue fits within the constructivist paradigm. From this perspective therefore, knowledge of a single reality in the social world cannot be gained through interviews (Silverman, 2004). This positioning of knowledge as created within the unique context of the interview has caused some to question the value of interview data (Yeo et al, 2014) as, if interview data is generated through an interaction, what meaning does it hold beyond that interaction? Many researchers, Yeo et al suggest, take a pragmatic view, acknowledging that while interviews involve knowledge which is created through an interaction, it continues to hold meaning beyond that interaction. They argue that while an interview will entail interaction between the participant and a researcher and this interaction must shape the form and features of the data it generates, participants must still be able to share their experiences during this interaction in a way that remains meaningful. The data generated, must still offer a way to better understand people's lives. Relatedly Silverman (2004) argued for a position from which information about the social world is suggested to be attainable through use of interviews, albeit only partially. These sentiments resonate with my own beliefs and are thus adopted for understanding the use of this type of data within the current project. Silverman suggests that whilst research cannot perfectly reflect the social world, it can provide access to the meanings that people form in relation to their experiences and their social worlds. Silverman (2004) argues that people can create and maintain meaningful worlds and the suggestion that these realities beyond the context of the interview cannot be explored should be challenged, as the roots of these realities are more pervasive than can be accounted for by this view. While interviews can never

fully explore and elucidate the lived experience of a person, they can be used to “describe truthfully delimited segments of real-live person’s lives” (Silverman, 2004, p129) and in doing so get closer to their lived experience.

When electing to conduct a qualitative interview therefore, a researcher seeks to understand the understandings of others and explore their subjective points of view, the task upon doing so, is to then describe these understandings in a depth and detail that represents the participants views fairly (Silverman, 2004). The insights gained through interviews however must always be partial, stories cannot be infinite in length, there are time constraints to consider in addition to norms in conversation that dictate that no person would ever discuss every detail in recounting an experience or sharing a perception. Further, the process of analysis exacerbates partiality. Coding and categorisation, and a restricted focus on certain aspects of stories will always contribute further fractures (Silverman, 2004). This latter limitation is one I seek to address through use of multiple methods of analysis, including the use of narratives through which I attempt to produce a less fragmented picture of the placement experience than could be produced through use of thematic analysis alone.

Interviews, though in some ways limited, also offer benefits to the qualitative researcher. A key benefit of interviews is their depth of focus on the individual. This depth of focus, alongside the opportunity for clarification and detailed understanding mean complex experiences are best addressed through such direct exchanges (Lewis and McNaughton Nicholls, 2014). Interviews were thus an appropriate and necessary method in order to meet my aims of conducting a sociocultural exploration of the students’ subjective understandings of their placement experience, the emergent practices that served to influence learning on placement, and the relationship between the placement experience and identity.

In the present study therefore, the use of interviews means that following Facebook interactions, matters of interest can be carried forward and probed in greater depth through interview discussions. Combining methods for this purpose is not uncommon, Ritchie and Ormston (2014) suggest that focus groups for example are often used in the initial stages of research for beginning to identify and explore relevant issues, which can then be taken forward and subsequently explored in more depth through use of interviews.

The Context

The University

The study focused on the experiences of students enrolled on either a computing or engineering course at one university in Northern England. The university ranks highly within the UK for its provision of paid industrial placements.

The Department

The University's computing and engineering department was split into two sub-divisions covering a range of subject areas within multimedia, computing, engineering and technology. The Computing and Engineering department were in the top 10 UK providers of sandwich courses. All full-time degree courses within the department offered a placement year, with up to 200 students placed every year in the UK and overseas.

The Placement Team

The department included a team of staff solely dedicated to the task of assisting students in acquiring their placement. The team's office resided in the same university building as the remainder of the department and so was easily accessible to students. Within the office advice and careers guidance was provided through drop-in sessions and one-to-one appointments. Students were supported by the team in a variety of ways including through CV creation support and through the facilitation of mock interviews. The team had additionally built a database of placement opportunities for students to access. In the year preceding placements, students were timetabled weekly placement lectures covering an array of subjects, designed to provide advice, ideas and assistance in relation to obtaining a placement. The team additionally invited guest speakers to the lectures in the form of prior placement students and placement companies.

The Programme

Students from a range of computing and engineering courses were included in the study. Each course included was full-time with a placement year following the second year of study. If unsuccessful in their placement search students could bypass the placement year and progress immediately to the remainder of their studies as a full-time route, or have a year out provided they could evidence that they had made every effort to obtain a placement. A variety of companies and roles were considered viable placement options, however the position had to involve experience relevant to the field of study. Typically, placement students were paid a moderate salary for the year however positions in some sectors were more likely to be unpaid.

The Process

The process of applying for placements began at the start of the second year. Initially students developed their CV to be checked and approved by the placement team. Upon approval of their CV students could join an online placement portal enabling the search and application for potential positions. Placement staff subsequently passed on CV's to interested employers. Following applications, the placement team pursued and organised interviews with interested parties.

Throughout the year students were scheduled to attend weekly placement lectures where information regarding obtaining a placement was provided, attendance was formally monitored. Upon the successful placing of the student, attendance at preparatory lectures was no longer required. Once placed, students were forbidden from pursuing further opportunities. Students were required to decline any other offers extended after accepting a position. The placement team then called the company on the student's behalf to clarify important details such as start date and salary. Students were required to arrange their own accommodation regardless of location.

Recruitment

Facebook Group Recruitment

The process of recruiting students to participate in the Facebook group required two stages:

The first stage of recruitment involved a brief presentation at a pre-placement guidance lecture that second year students attended at the end of June 2015. The lecture was delivered by the head of the placement team and involved guidance regarding what to expect and how to behave whilst on placement. Before beginning the research project, I met with the head of the placement team and sought her assistance as the 'gate-keeper' to the computing and engineering second-year cohort. It was within this preliminary meeting that I was invited to present my request for participants at the guidance lecture. At the time I was informed that the lecture was to be delivered to all second-year students across the computing and engineering courses, but later learned that the computing students were not in attendance. I was asked to wait until the end of the two-hour lecture to explain what my study would entail, and unfortunately by this point some of the students had left and many of those who remained appeared to be flagging. At the end of the two-hour lecture I explained what my study would involve and requested student participation. I had previously been informed by the head of the computing and engineering department that I could not send blanket emails to the students and so upon explaining my research intentions I was only able to provide the students with an email address through which they could express their interest, I could not follow up with a reminder email to the

students, nor could I email the computing students who were not in attendance. Unfortunately, only two students responded to participate in the research in response to this call for participants.

Requiring more participants for the Facebook group I began my second round of recruitment between July and August 2015. Following my previous participation request, a departmental rule change had come into effect which stated that research requests could not be made through the university. I could no longer promote my research in lectures in addition to being unable to promote through university internet-based services such as emails and the intranet. The only remaining option for recruitment was social media. Earlier it was mentioned that a limitation of using social media as a method of data collection would be its potential to limit participation opportunities for those who do not use the social networking site. Unfortunately, the restrictions on additional recruitment opportunities meant that this also became a limitation of recruitment. The university's computing and engineering department provided details of social media pages through which I could gain access to potential participants. This included the departments official Facebook page in addition to pages for affiliate groups such as the university computing society and engineering society. On each of the pages I posted the following request:

*"Hi everyone...I'm wondering if you would like to take part in my research project looking at experiences of placement participation for Computing and Engineering students at *university name*. This could be a great opportunity to hear about the placement experiences of others and potentially keep up with people from your year group. And it's a chance to contribute to an under-researched area with your own experience. You are invited to participate provided that you are participating in a sandwich year work-placement this year and attend *university name*. The commitment is minimal, it will simply involve joining a closed Facebook group and filling out a consent form. Once every fortnight I'll ask everyone in the group a question relating to the placement and I'd like you to discuss your experience in relation to this question. You are under no obligation to answer the questions and you can leave the group at any time. Feel free to post your own questions/discussion starters relating to placement participation as often as you like. I'd be really grateful if you would consider taking part and help me to complete my PhD".*

Included in these posts were my contact information and a link to the closed group. By following the link students could request to join the group, and as group admin I had to accept their request before they could see the groups content.

Interview Recruitment

Recruitment for interview participants commenced in November 2015, roughly four months after data collection began through the Facebook group. The staggering of data collection in this manner enabled the opportunity to use the preliminary Facebook group discussions to begin to build a picture of the key areas that would benefit from further exploration in the semi-structured interviews.

Recruitment of interview participants once again utilised the computing and engineering department's social-media pages. On each of the relevant pages I posted the following request:

"Hi everyone...I'm wondering if any of you might like to talk to me about your recent work-placement year experience to assist me in my PhD research project? Our interview would take place at the university at a time and date convenient to you. Your contribution would be a massive help for me in completing my research and it's a chance to share your experience, contributing to research in your industry. Thanks for taking the time to read this, please private message me if you think you might be interested or for more information 😊"

This message was reposted two more times over the course of the academic year at infrequent intervals to avoid saturating the groups' page with participation requests. I additionally posted on the research Facebook group requesting for members to mention the interview invitation to their friends.

Sample

Facebook Group Sample

The total number of students who joined the Facebook group peaked at 38. By the end of the study 18 remained. The majority of these participants were male, with only two female participants electing to join the group, one however became one of the most frequent group contributors. The group was constituted of a mix of both computing and engineering students. Each of the students were undertaking a sandwich placement during this phase of data collection, with the exception of one student who had completed his placement in the year prior and chose to answer questions retrospectively. This student also took part in a semi-structured interview.

Interview Sample

In total 12 semi-structured interviews were conducted. One of the interview participants had participated in the Facebook group. Two other students had in addition also offered to participate in an interview, one female and one male, but ultimately decided not to go ahead. The majority of interviews were conducted with students who had recently returned to the final year of their course. In four instances the participants had recently graduated and were now in further study or full-time

employment. Once again, the majority of participants were male with only one female accepting the invitation to be interviewed. Two of the twelve students were international and three were mature students, the remainder were UK domicile males under the age of 21 at course commencement. The majority of the participants interviewed studied a mechanical engineering course, other courses included energy engineering, computing studies and automotive and motor sport engineering

In total 49 participants were recruited for the study and only three were female. Though it might be argued that this imbalance may be representative of the gender disparities existing in the subjects under study I had sought to gain a greater number of female participants. In addition to asking my existing participants to inform their friends about the research project and highlighting in particular the need for female participants I also posted an additional social media request across all the pages I had been informed of by the department, in which I stressed the importance for female participation within the project.

In addition to these measures I also made contact with a student who I had come to learn had created a social group for women in computing for herself and her peers and requested (with permission from the school's ethics panel) to observe and record their meetings for the purposes of my research. The meetings were intended as opportunities for female computing students to support one another with matters of their education including experiences of work placement participation. Though I gained permission to record these meetings they were unfortunately in their early stages and did not produce data pertaining to the placement experience and so regrettably the decision was made to discard this method of data collection.

Data Collection Method

Facebook Group

"Facebook groups are the place for small group communication and for people to share their common interests and express their opinion. Groups allow people to come together around a common cause, issue or activity to organize, express objectives, discuss issues, post photos and share related content" (Hicks, 2010).

The nature of Facebook groups can vary in terms of privacy settings and this has implications for how the group can be shared with Facebook users and the extent to which the content of the group can be seen by non-group members. Currently a Facebook group's privacy settings can take one of three forms: public, closed and secret.

In both a public and closed group anyone on Facebook can search the group, request to join and see certain features of it. In a public group, prior to joining, all the content can be seen, in a closed group

only certain features can be seen: the cover photo, the number of members, the group admin and the 'about' section which the group admin creates to inform non-members of the groups purpose. With a secret group in contrast the group cannot be searched or seen by none-members, individual Facebook users can be selected to be 'invited' to the group at which point they can see certain features of it such as the about section and its members, and upon joining they can then see the remaining content. I elected to create a closed group. To ensure the group was as private as intended, I created an additional personal account from which I could attempt to view the group from the outside, which confirmed what could and could not be seen by non-members. By electing to design a closed group it was possible to ensure the participants anonymity, by shielding their participation to non-members, whilst still being able to share the details of the group with large numbers of potential participants. The ability to provide a link to the group where students could then read the 'about' section and if they so wished could immediately click a button to request to join, was a valuable tool in sharing my research project with potential participants and recruiting them while their interest was peaked. I suspect if I had simply explained the premise of the research without being able to share a link to the group as would be required with a secret group, the extra layer of interaction may have stifled momentum and reduced enthusiasm to participate. King, O'Rourke and Delongis (2014) suggest immediacy and the opportunity to draw prospective participants directly to the study, to be an integral advantage of combining social media recruitment and online data collection.

In the group's about section I wrote the following:

"Hello 😊

*Thank you for taking the time to look at the group. This closed group has been set up as part of a Human and Health Science research project. If you are a *university name* Computing and Engineering student and you are currently participating in a placement you are invited to participate.*

My aim in this research is to learn about your experience of University and to hear all about your placement experience.

Please take the time to read the documents I have uploaded, if you then decide you no longer want to take part in the study you can leave the group whenever you like. Thank you for your interest, it's very much appreciated!

Kirsty"

Students began joining the social media group from July 2015. As the process of recruitment was ongoing, in July I monitored the group frequently to accept joining requests and to regularly update those who had joined on the progress of the project. Typically, this would involve welcoming newcomers, explaining that the process of recruitment was ongoing and that the project would begin in August. During this period, I made efforts to direct the newcomers' attention to the group rules and asked them to access the information sheet and consent form which I requested they complete and return via email or private message.

During the month dedicated to Facebook group recruitment 30 students requested to join the group, with requests to join slowing significantly toward the end of the month. Initially I began with introductory questions to gauge levels of participation, build rapport and to allow time for any final students to join before the main placement related discussions began. Only eight additional students joined the group in this period. During this introductory phase I asked questions pertaining to where the students were currently in their education and career, what they hoped to achieve from their studies and their short-term and long-term goals. As I posted these preliminary questions I also offered my own answers in a bid to build familiarity and rapport and to address the power imbalance that might stem from my position as researcher where inevitably I would volunteer less information about myself over the course of the study than the students would be asked to volunteer about their own lives.

In the course of conducting the Facebook groups the topics raised were designed to follow a timeline consistent with the students' current placement experiences. Where they were in the initial stages of placement for instance questions pertained to the transition. Where they had been working for a significant period, questions explored how things had changed and their progression, and so on. A sample of the topics raised can be found in the appendices (Appendix 1). I would post a new question each fortnight, and the participants would post their answers using the 'reply' function. Where desired students could also reply to other students' responses, which a small number of students elected to do on occasion. The process of collecting data from the Facebook group spanned from August 2015 until November 2016, this meant it was possible to capture experiences starting from the early weeks of placement right up until the early weeks of returning to university.

Interviews

In total 14 students agreed to be interviewed as part of the research project, however two subsequently elected not to participate taking the total number of interview participants to 12. While recruiting the participants, I indicated that the interviews were anticipated to last around 60 minutes. Yeo et al (2014) suggest that an interview generally requires at least an hour to gather a good level of

depth, but more than two hours can negatively impact a participant's concentration. The majority of the interviews lasted around one hour as anticipated, with the average duration being 57 minutes. Throughout each interview I tried to be mindful of timing and would consistently try to gauge whether the student was genuinely happy to continue with our discussion or whether it might be a good time to begin winding the interview down.

As per my agreement with my university ethics committee, the interviews took place within a university building in a small, private room that was designed to function as a space in which to conduct research. This space had the advantage of being quiet and private in addition to being neutral ground easily accessible to both myself and the study participants.

Recruiting participants to interview typically involved sharing a public post, followed by a private message interaction from which the participant was able to gain more information and we could arrange a suitable time and date at which to meet. Whilst arranging to meet the participants I attempted to be as flexible as possible consulting with the participants as to which days and times would work best for them, which typically meant arranging the interview to occur between or after their scheduled lectures, limiting the need for participants to travel.

During these private message interactions, I made use of the chat facility's 'attachment' function to provide the participants with a copy of the information sheet and consent form so that they might have an opportunity to read both in advance and begin to formulate any questions they might have. I also ensured to bring an additional hard copy of both forms and took the time to go through each with the participants in person, before gaining their written and verbal consent to participate.

Upon explaining to the students that they did not have to participate, that they could end the interview at any point and that they could choose not to answer any question I then endeavoured to explain the format of the interview.

In each interview I loosely followed an interview schedule, found in the appendices (Appendix 2). Yeo et al (2014) suggest that the structure of an interview should be sufficiently flexible to allow the researcher to raise issues, to probe and prompt participant responses and to discuss topics in an order most suited to the participant. Though the questions included in the schedule were not followed rigidly, where possible I attempted use the broad topic areas as a guide which organised the conversation to flow as a timeline, beginning with an exploration of the students' pre-placement university experiences, followed by the application and interview process, the transition to the workplace, experiences and progression over the course of the placement year and finally the return to study. I wanted the discussions to appear conversational, and flow naturally to make the

participants feel comfortable, and to generate insights beyond the pre-determined topic areas, so I elected not to adhere rigidly to the topic guide, but would steer back to it where the discussions appeared to be navigating away from issues of relevance, or where a natural break occurred in the discussion ready for a new line of questioning to begin. Over the course of conducting the 12 interviews I gradually amended the interview schedule to include additional questions relating to issues that had arisen in former interviews and Facebook discussions, which I sought to explore further. Throughout the interviews I attempted to use open, non-leading questions and engaged in active listening, described by Atkinson and Hammersley (2007) as trying to hear the meaning of what is being said, understanding where subtext must be explored, considering what hasn't been said and exploring the nuances of the participants account.

The manner in which the interviews were conducted was aligned with the process described by Yeo et al (2014) who recommend six stages to interview process.

Stage One: Arrival and Introductions.

Yeo et al (2014) suggest that at the point of introduction the interview effectively begins. These initial minutes they argue, are crucial for establishing rapport. The initial introduction they suggest will involve the typical greetings and small talk of two people first meeting, which should then be followed by a signal that the interview is ready to begin by for instance taking out the topic guide and checking where the interviewee would prefer the interview take place. Typically, the interviews in the current project would begin with an introduction and an exchange of niceties. I would check that the room was at a suitable temperature and offered to adjust the heater.

Stage Two: Introducing the Research:

At stage 2 Yeo et al (2014) suggest the interviewer should begin to introduce the research topic, explaining the aims and objectives of the research, its purpose and the areas to be covered, to help the participant to begin thinking about the topic and set the context of the questions. Following, any introductions I would ask the participants if they had managed to read the information sheet and would take the time to go through it with them before then asking if they had any further questions. I would then explain the format of the interview and reiterate that it would be recorded. We would subsequently read through the consent form, clarify any further questions and at this point I would gain verbal and written consent to continue, I would then request their permission to turn on the recorder signalling the start of data collection.

Stage Three: Beginning the Interview:

Yeo et al (2014) suggest that the opening questions of an interview are an opportunity to ask important contextual information. Typically, in the current project this would entail asking the students on which course they studied, when they completed their placement year and where they were currently in their education or career.

Stage Four: During the Interview

In stage four of the interview process the researcher must guide the participants through key themes, both anticipated and emergent (Yeo et al, 2014). I did so by using open questioning and active listening to demonstrate to participants a desire for them to talk openly.

Stage Five: Ending the Interview

As the end of the interview is drawing near Yeo et al (2014) suggest the researcher can signal that the end of the interview is approaching, which might encourage the participants to raise any issue they had not yet discussed and to assist the participant in returning to the level of everyday social interaction. To ensure the participant is not left feeling as though they have left anything unexpressed, an opportunity to share any final thoughts or comments should be offered. Typically toward the end of the interviews with the participants I would seek to ask round-up questions that signified the interview was coming to a close, such as asking what had been their favourite thing about placement overall, were they glad that they had elected to do it and what advice would they give to someone else about to begin a placement year. This not only served to demonstrate that questioning was winding down, but also ensured that the students' final thoughts were to focus on the best aspects of their experience in a bid to ensure they could feel they ended the interview on a positive note.

Stage Six: After the Interview

At the end of the interview Yeo et al (2014) suggest it is important to thank the participant, explain what will happen next with the data and provide a chance to ask any final questions. They also suggest that at this stage participants should be provided with any contact details they might require and information for support services where needed. In only one case did I become concerned that a participant might require support following the interview. One participant suggested that his experience of placement had been quite negative and that there was a culture of bullying within his workplace. Though he spoke about his negative experiences quite matter-of-factly, and suggested that overall, he was glad to have had done the placement, I still felt it important to check whether he felt he might want some support following our interview. I was reassured in this conversation that this was unnecessary, he explained that he had had a full debrief with the placement team following his placement, and it had been a few years since his placement took place and as such he was not at all

distressed by anything discussed. As each interview ended, I thanked my participants for taking the time to speak with me and asked if they had any questions. Typically, any questions asked tended to err on the side of small talk such followed by a final thank you and expression of my gratitude for their participation.

Ethics

Approval from the school research ethics panel was obtained to conduct this research following a successful ethics submission which can be found in the appendices (Appendix 3). While conducting the project I adhered with the BPS code of ethics and conduct (2009).

Participants were provided with an information sheet detailing the purpose of the research, the method of data collection and their potential involvement in the study. The information sheets varied slightly dependent on the data collection opportunity. The variants of the information sheets in addition to consent forms can be found in the appendices (appendix 4-7).

In addition to gaining permission to conduct this study from my own academic department's ethics panel I also sought permission from the focus university's head of computing and engineering. And I additionally gained permission to access one placement related guidance document, and placement related lectures from the head of the computing and engineering placement team who was in charge of running the sessions and oversaw the creation of the guidance document. Both the document and the lectures were used to build up an initial understanding of the placement process in the university of focus but were not used as data collection opportunities.

Throughout the project I endeavoured to integrate ethical considerations into the decision-making process and used these considerations to inform my ongoing actions. In this chapter I have attempted to demonstrate where I took measures to conduct my research in an ethical manner. In addition to providing the ethics submission and corresponding documents in the appendices, below I have summarised where I have addressed matters of ethics throughout the project.

Anonymity

Participants were informed that their data would be anonymised in a manner that did not reveal their identity or that of their peers, colleagues, employers or lecturers. While writing up the project I provided participants with pseudonyms and changed the names of anyone else that they mentioned. I also censored the names of workplaces, products and locations where it might otherwise have compromised anonymity. Censoring the names of workplaces in particular was an important caveat in gaining permission from the computing and engineering placement team due to the sensitive relationships they had built with placement employers. Whilst anonymity was assured in the write up

of the project, confidentiality was not offered due to the intended dissemination of the data across multiple formats. Whilst in the Facebook group, members could see one another's replies I did offer participants the opportunity to post their response to me directly through use of the private message function and also recommended students create a new account with a pseudonym for the purposes of the research should they desire a greater level of anonymity in this element of data collection.

Right to Withdraw

In both variants of the information sheets I offered students the right to withdraw their data until the specified date that analysis was scheduled to begin. Students were made aware that their participation was voluntary and that they were not obliged to take part. In the case of the Facebook group should students decide they no longer wanted to take part they were able to leave the group at a click of a button, in interviews students could ask to end the interview at any point without question. Should they prefer to not answer certain questions students could choose not to post a response on the Facebook group that week or ask that we move on to the next question in the interviews.

I attempted to give all potential participant's access to information sheets and consent forms up to a week in advance of each data collection opportunity so that they could decline participation more comfortably through email to limit any pressure of obligation that may stem from requesting participation face to face. When arranging interviews with students enquiring about participating in the study, I did not push them to participate and made it clear that they were under no pressure to do so. Where two students offered to participate before ultimately changing their minds, I respected their decision and thanked them for their time and offer regardless.

Data Protection

Where hand-written notes were created, I attempted to protect participants' anonymity by using initials instead of names. At the earliest opportunity I transferred these notes into an electronic format and shredded the paper copy. All electronic data was password protected. Students were made aware that the data would not be destroyed for a period of 5 years as per university protocol.

Risk of Harm

Whilst the research topic was not considered sensitive in nature, I explained to students that there were protocols in place should I become concerned for their physical or psychological well-being. The interview protocol I put in place meant that if in an interview a participant had become distressed, I would have ended the interview and referred the participant to the university's counselling service. Likewise, if students on the Facebook group appeared distressed, I would refer them to the counselling

service via a private message. If I became concerned either during the interviews or the Facebook group interactions that students were in need of assistance whilst on placement or at university I would recommend they speak with the placement team and request their permission to make the placement team aware of any concerns (if the student did not want the help of the placement team I would not take the matter further). I made participants aware that if I felt based on interactions with any student that they were at risk of serious physical or psychological harm I would seek advice from my supervisor as to the correct course of action, where it may then be deemed necessary to disclose their identity. On the Facebook group I shared a duty of care document in which I reiterated this information and also explained to participants that they must treat one another with respect whilst posting on the group and that failure to do so might result in their removal, this document can be found in the appendices (appendix 8).

Informed Consent

Before the interviews I emailed participants an information sheet and consent form well in advance of the data collection opportunity so that they could read the documents at their own pace and had plenty of time to formulate any questions they might have. I then took the time to go through these documents with the participants in person. Students were asked to provide, verbally and in writing, details of which elements of the research they consented to.

Despite providing students on the social media group with an electronic version of the consent form and an information sheet which was easily accessible on the group at all times, few social media participants returned their electronically signed consent form. After posting numerous requests for students to return their forms to no avail I deemed it necessary to take an alternative approach. For this reason, after consulting with BPS guidelines and following discussions with my supervisory team I altered the means by which I could obtain consent from the Facebook group participants. Thus, I created a post in which I detailed the key aspects of the research taken from the duty of care document, information sheet and consent form and stated that by posting on the group students were consenting to participate in the research project and were agreeing to abide by the group rules. A Facebook feature allowed me to ascertain that all group members had seen the post.

Additional Considerations

Interviews

When planning interviews, I arranged to meet with the students in a pre-booked university room to limit any inconvenience to them, and to ensure that they felt safe and comfortable in familiar territory.

This also meant that I too would be safe in the knowledge that university staff were nearby in the event of an emergency.

Facebook Group

By posting on the Facebook group fortnightly I hoped to strike a balance between maintaining of a good level of contact with the participants over the course of the year and providing the participants with enough time between posts that responding did not become burdensome.

When designing the Facebook element of the project I debated as to whether I should use my existing Facebook profile or create a new one for the purposes of the research. Lunnay, Borlagdan, McNaughton and Ward (2015) argue that in creating a Facebook account solely for the purpose of research as opposed to using one's own account, a researcher may lose out on opportunities to build rapport by depersonalising themselves. Baker (2013) alternatively argues that whilst the creation of a new account may result in an inequality of the volume of personal information between the researcher and participants, a counter argument could be made that such an inequality would exist to the same extent in an offline context. As my research did not involve scrutinising my participants personal Facebook profiles, I felt issues of inequality were lessened compared other Facebook based research projects. In addition, I was not adding the participants as 'friends' meaning had they elected to make their accounts private then myself and the other group members would not have been able to see their profiles regardless. Though an argument could be made in favour of either option I ultimately elected to create a new account solely for use in the research project. Though it was inevitable that the students would volunteer more information about themselves than I would in the course of the study, I did offer my own answers to the introductory questions I posted to help address this imbalance.

Analysis

To meet my study aims the focus of the analysis was the exploration of the subjective experience of placement participation and the psychological mechanisms that contribute to the potential to learn and grow from this experience. In the analysis of my data, I employed two analytical methods; narrative construction and a theoretical thematic analysis. Drawing only on interview data the constructions of narratives served to offer an insight into the experience of placement, while thematic analysis was then used to identify patterns across the data as a whole.

Narrative Constructions

I elected to analyse my data using the method of thematic analysis as outlined by Braun and Clarke (2006). However, in seeking to meet one of the aims of my research "*to explore students' subjective*

understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience”, I questioned whether a thematic analysis would suffice. It struck me as I read the literature exploring work placement learning how few studies were able to capture the actual experience of being on placement. Though many studies explored placement outcomes, design, best practice and so on, very few offered an insight as to what happens on placement, what students experience once they're there. This notion of capturing the nature of placements, as subjectively experienced by students was in part what I sought to achieve with this aim. I did not however believe this could be achieved through use of thematic analysis alone. Silverman (2004) emphasises the importance of exploring and describing participant's points of view in a depth and detail, that enables their experience to be faithfully represented, but argues that the process of coding and categorisation limit the ability to do so. Through the construction of narratives however, data which consists of actions, events and happenings are synthesised and configured in the process of producing stories as the outcome of research (Polkinghorne, 1995). In this regard, narrative constructions in allowing the threading together of events to produce a cohesive account of an experience, to some extent can combat the partiality Silverman argues is inherent in other methods of analysis. By incorporating narrative constructions therefore, I sought to produce a less fragmented picture of the placement experience than could be produced through the use of thematic analysis alone, enabling me to better meet my aim of exploring the students' subjective understandings of their placement experience, and addressing the lack of focus on the placement as an experience, that was identified as a limitation in the existing literature.

In addition, Wenger (2008) characterised identity as a work in progress, requiring ongoing efforts “to create a coherence through time that threads together successive forms of participation in the definition of a person”. He argued, identity trajectories incorporate both the past and the future in the experience of the present. In line with this Lewis and McNaughton Nicholls (2014) highlight the importance of setting a person's current experiences in the context of their personal history of experience. In considering the limitations of thematic analysis however, Tobbell (2006, p110-111) argues:

“The principle disadvantage is that in breaking down the data and reassembling it, the situation or participants are not considered as whole but rather there is an assumption that they are the sum of their parts and the possibility of distortion exists.”

Constructing narratives that illuminated individual placement experiences, and situated these experiences in relation to each students' past work/education opportunities and future aspirations therefore, enabled the ability to offer clearer insights into the identity trajectories of students on

placement, than could be achieved when deconstructing experiences into themes. Wenger's (1998) vignettes of Ariel offered an accessible way to envisage Ariel's working life. In the same way I sought to produce narratives that offered the reader access to the work placement learning journey, as subjectively experienced by the students. In doing so I believe I was able to also begin highlighting the shifts in identity the students undergo and practices they experience in the course of their year in industry. It was for these reasons that I elected to begin my analysis with the construction of narratives.

Below is a table summarising the contribution narrative constructions offered in enabling me to meet the study aims:

Aim	Contribution
2. To explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.	Enabled the threading together of events to produce a cohesive account of the subjective experience of learning on placement.
3. To analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.	Set the students' accounts of their placement experience in the wider context of their personal history of experience, highlighting their shifting identity.
4. To explore the emergent practices which serve to enable or disable learning on placement.	Elucidates the practices subjectively experienced in the course of placement and the impact these practices were felt to have had on participation.

Table 3: Contribution of Narrative Constructions

Lewis (2011) argues that stories are quite possibly the principle way of understanding the lived world. Hendry (2007) argues that a key motivation in the expansion of narrative research is the fact that it allows researchers to introduce stories that are typically excluded from educational research. When setting out to construct narratives of the placement experience, I wanted to convey each with enough detail to do justice to the richness and complexity of the participants' experiences. For this reason, I elected to use only interview data. Though I believed that I had gained detailed data from the Facebook group, I felt that I could not capture the students' journeys with this method with as much richness and clarity as could be gathered through the interviews, where I had been better able to

probe what I had perceived to be the most relevant insights. Similarly, when choosing which of the interviews to base my narratives upon, I again considered which of the interviews offered most depth. However, in the process of engaging with each of the interviews, I also recognised how diverse each experience was, and so the ability to capture the diversity of the placement experience was an additional factor on which I placed importance. My decision as to who's interview I would turn into a narrative was also based upon my own subjective interpretation of which of the students' experiences would enable me to represent the complexity of the placement learning experience. Though I felt ultimately that I had selected those interviews where the data was most rich, diverse and enlightening I do not deny that this was a subjective process, influenced no doubt by my own values and experiences and theoretical allegiances.

Czarniawska (2004) suggests that a narrative usually gives an account of a series of events or actions which are chronologically connected and must include a plot which consists of the passage from one equilibrium to another. Polkinghorne (1995 p.5) explains narrative configuration to be a process by which:

"happenings are drawn together and integrated into a temporally organized whole. The configurative process employs a thematic thread to lay out happenings as parts of an unfolding movement that culminates in an outcome. The thematic thread is called the plot, and the plot's integrating operation is called emplotment. When happenings are configured or emplotted, they take on narrative meaning. That is, they are understood from the perspective of their contribution and influence on a specified outcome".

When constructing the narratives, I sought to ensure each had a clear beginning, middle and end and represented the students' journey through placement from their initial transition to placement to their eventual return to university. With each narrative, I attempted to begin with an insight into some aspect of the participant's academic journey prior to embarking on their placement, and in doing so I hoped to situate the students' placement experience in relation to their academic past.

Polkinghorne (1995) suggests that the result of narrative analysis is the production of a retrospective explanation that links past events together to demonstrate how a final outcome may have come about. In every student account it was also evident that each student faced challenges whilst on placement. It was also clear as I read my data that each of the participants succeeded in their placement. Though some may have struggled more than others, no student quit before the year ended and each suggested they had grown from the experience. For this reason, the core plot in each narrative related largely to the process of progression. It focused on the unique set of issues and challenges that each student had to face in order to succeed and grow whilst on placement, and the

actions they took in doing so. As I ended each narrative, I wanted to offer the reader an insight into the participant's current situation, not only in terms of where they were academically or professionally but also about how they felt in terms of their progress and what that might mean for their future, to offer the reader a sense of the students' shifting trajectory in response to their experience.

Though with the construction of narratives I sought to offer a more holistic insight into the data than could be achieved through thematic analysis alone, in order to write a concise narrative it was still necessary to limit the inclusion of data to that which I believed to be most relevant to the story. Again, I recognise where these representations of the placement experience have thus been influenced by my own perceptions and decisions.

Though in my first attempt to write the narrative I aimed to take a systematic approach, editing down the transcripts to contain only the data I thought most pertinent to the student's experience, testing the beginning attempts at emplotment against the data, and toing and froing from parts to the whole (Polkinghorne, 1995) ultimately I found this method to be too constrictive and distracting. In toing and froing between the edited transcript and my emerging story I felt that the narrative did not flow, that it read as a series of answers, pieced together but not cohesively. By this stage in my research however I knew my data thoroughly, I had already begun forming the narratives in my mind, and with each time that I read my data I thought of my emerging plot and considered where the events I read converged or conflicted with it, adapting my thoughts surrounding the plot accordingly. For this reason, I explored the potential for writing the first draft from memory, without the process of toing and froing Polkinghorne recommends. Once the first draft of the first narrative was written in this manner, I then returned to the data to check what I had written was true to the students' description of their experience and to explore where additional events described in the data might need to be incorporated into the story. Upon determining where these additional events fit into the story, I would adjust the narrative accordingly. This same process was then repeated for each narrative.

With each narrative I wrote in the third person. The decision to do so was based upon the fact that I wanted to make clear to the reader my own position in the construction of the narrative, that the story was written not by the participant but by the researcher, drawing upon the reflections of the participant. Tierney (2002) argues that the researchers 'voice' in a text is always an epistemological concern and to overlook this issue is to ignore the critical relationship between participant, researcher and reader. Christensen (2012) reflected on her own sense of regret having written a narrative in the first person, when on reflection writing in the third person would have been equally effective for communicating her ideas with the reader and would have offered greater transparency in relation to her own positionality within the text.

To demonstrate credibility in the construction of narratives, Koch (1998) argues it is necessary to establish that the narratives are represented adequately by demonstrating how interpretations are arrived at in the construction of the narrative. For this reason, Koch asserts it is useful to include a transcript in the study's appendix and to explain where interpretations were derived from participants' descriptions. In keeping with this assertion, I have provided in the appendices (Appendix 9-14) the transcripts of the six interviews used in the construction of each narrative, so that the reader might consult them and verify how closely the stories represented the data. As I constructed the six narratives that follow, I attempted to limit the extent to which I interpreted the data. By this I mean that I tried to remain as close to the students' descriptions as possible, whilst still reconfiguring what they said to form a cohesive story. As an example, in the story of Kevin I write that whilst at university Kevin gained high grades, which he attributed in part to the help of his friends whom he would study with in preparation for exams and whom he gained help from in his practical sessions. I wrote that without his friends, Kevin felt he might have struggled at university. I suggested that Kevin found his adjustment to placement very difficult and I wrote that one of the biggest issues in his transition to the workplace was that he felt like an outsider because he didn't really know anyone in the beginning, and at first, he would attempt to solve problems alone before finally admitting defeat and eventually asking for help. As I hope the following quotes will demonstrate, what I wrote remains very close to my participant's description of his experience:

"I think probably having a good social group that you could sort of bounce ideas off like when it came to exam time we were all like equally as scared I think, erm so we'd come into uni and we'd spend like six, seven hours a day just like working through past questions and textbooks and this sort of stuff".

"Yeah there's two or three of my friends that have been on my course that I knew from school, erm who sort of took different routes from school and then came back when we were at university, and sort of they went down the practical side of it and so we bounced ideas off each other and helped each other out in that sense like he's good at the practical and not so good at the theory and I'm the other way around so".

"I think I would have really struggled, in second year especially, erm some of the modules was, like we had some really hard maths in it and even I struggled a lot, and sort of between about eight of us we managed to figure out the answer to one question".

"I'd be sitting there not really sure what I was doing and just sort of clicking and hoping I'd find the answer erm and then eventually sort of "oh I've been doing this a bit too long now I should probably go and ask"

"I think not knowing anybody as well was quite a big thing for me sort of the placement students all by the end of the year had all got really good friends and stuff like we went on holiday about 8 times so especially with me starting a month after, about half of them had started erm so they'd already started forming they're little social groups it's like you're a bit of an outsider"

At the time that I read Kevin's transcript I wondered whether in studying alongside the same group of friends through both college and university he had grown to become over-reliant on his long-standing friendship group. Thus, I questioned whether the support and help they had offered him had become so important for his confidence, that upon entering an environment where he no longer had such a strong support base he found himself at a loss, unable to draw upon the help of his peers to which he had become so accustomed and too afraid to seek the help of people with whom he was less comfortable, except where absolutely necessary. I chose however not to include interpretations such as this into the data, electing instead to simply produce a story that offered an insight into the students' experience based largely upon the participants' descriptions. I wanted to allow the reader to interpret this experience in their own way, however that might be. I sought with this method of analysis, to offer an insight into the students' subjective experiences of their placement and the meanings they formed in relation to it, and I did not feel at this stage further interpretation was necessary, I reserved the act of explicitly interpreting the data for the thematic analysis that would follow, in which interpretation would be a necessity for meeting the remainder of the study aims.

Thematic Analysis

Thematic analysis, through its theoretical freedom, offers a flexible research tool which has the potential to produce a rich but complex account of data (Braun and Clarke, 2006). It can be used to illustrate which themes are important in the exploration of certain study phenomenon by highlighting the 'most salient constellation of meanings present in the dataset' (Joffe, 2012, p.209). As such, Joffe argues, thematic analysis facilitates the establishment of models of thinking, feeling and behaviour. A thematic analysis of the data set as a whole would therefore contribute to meeting the following aims:

2. To explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.

3. To analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.
4. To explore the emergent practices which serve to enable or disable learning on placement.

To meet the first aim of the study:

1. To apply a sociocultural theoretical framework to the understanding of placement learning, whilst contributing new theory driven knowledge to the work placement literature.

I underpinned my interpretations with sociocultural theory. In doing so it was necessary to offer a less rich description of the data overall, to accommodate for a richer analysis of some aspects of the data instead. The thematic analysis was conducted using the guidelines produced by Braun and Clarke (2006). I began by familiarising myself with the data. I read and replied to each Facebook group post throughout the course of the year, and attended, recorded and conducted each interview personally. I then transcribed the auditory data myself and collated the Facebook data into an anonymised word document. Once the data was prepared for analysis, I then read it again in its entirety, at this stage without beginning to write any notes, but actively searching for patterns and meanings. Once I felt as though I was sufficiently familiarised with the data I began with the initial phase of coding. Using the comment function on Microsoft Word I made my way through each item of data adding a comment beside any feature of interest before creating a separate word file in which I collated each code with its corresponding data extracts. I then began organising the various codes into potential themes and sub-themes using post-it notes and a3 pieces of paper. A summary table outlining initial codes, merged codes and themes can be found in the appendix (Appendix 15). I then re-read the data and reviewed the themes checking as recommended by Braun and Clarke that there were identifiable distinctions between them, and that the data within each cohered in a meaningful way. I then created a name for each theme which I hoped captured its essence, and then began organising the extracts that constituted the theme to begin forming my argument as to what each represents about the placement experience. As I quoted data for use in the thematic analysis I did so verbatim with the exception of censoring information that compromised anonymity. Likewise, quotes from the Facebook group were copied and pasted directly from the original posts, again only information that needed to be censored was altered. For this reason, any spelling mistakes and issues of grammar in the original Facebook posts are present in the quotes. In the process of interpretive analysis, I considered each theme in relation to psychological theory and research, with an emphasis placed on Lave and Wenger's Communities of Practice Theory and Vygotsky's ZPD. Finally, I re-read the analysis in its entirety checking that the extracts quoted were in keeping with my analytic claims and assessing the extent to

which the analysis matched the data. Upon completing the analysis, I compared it against the 15-point checklist Braun and Clarke (2006) offered as criteria by which to review a thematic analysis.

Chapter Summary

The purpose of this chapter was to describe and justify the methodological choices made in the course of the research project. I outlined the rationale for approaching data collection in a pluralistic manner and demonstrated where a Facebook group and semi-structured interviews when combined would allow for meeting the study aims. The Facebook group in enabling ongoing contact with the study sample as they experienced their placement, was suggested to facilitate an insight into the negotiation of meaning and the shifting identity as it occurred. The importance of the ability to do so was explained through reference to Wenger's suggestion that learning and identity function temporally, and thus to better understand the process and evolution of learning and identity development, efforts should be made to explore it as it occurs. I also argued however that online research has been suggested to result in less detailed responses and that to explore complex phenomena, deeply set in participants' understandings, requires detailed insights and responsive questioning. Semi-structured interviews were argued to offer a depth of focus on the individual, the potential for clarification and the opportunities to set participants experiences in the context of their personal history. As such I argued to meet the study aims it was necessary to supplement the breadth of contemporaneous data gathered through social media with the detailed reflective data acquired through semi-structured interviews. I explained that to analyse this data I used a theoretical thematic analysis which enabled the identification of patterns of meaning in relation to placement learning experiences. I also argued however that in breaking down the data into themes, it became more difficult to situate aspects of the students' placement experiences in the context of their experience as a whole. I explained that for this reason I elected to begin my analysis with a construction of narratives, which I had hoped would offer a more holistic, enlightening insight into the complexity of experience of learning on placement which as yet is largely absent from the literature. The following chapter is made up of the six narratives that were produced for this purpose, and which were generated using six separate student interviews.

Chapter Four - Narratives

Phil

Phil Came to university as a mature student, he was in his early forties when he commenced his undergraduate mechanical engineering degree. He had attended university once before many years ago studying an unrelated subject but found that mental ill health meant that he couldn't keep up with the demands of the course. After dropping out of his first-degree, Phil entered the workplace and tried his hand at a number of jobs but in the ensuing years found his mental health problems had become too great for him to be able to function effectively which ultimately led to a hiatus from both education and employment which lasted almost 15 years. Once his health had begun to improve and his life was getting back on track Phil re-entered academia to begin his engineering course. He elected to study on a course with a placement option because it was, in his opinion, an opportunity for self-discovery. After hiding away for so long, re-entering academia had been a challenge, but for him the true source of anxiety would be returning to the workplace. University he felt was in some respects an artificial environment, one in which he was looked after, where allowances were often made because students are after all, still learning. In the workplace however, he knew from past experiences that such accommodations are not a certainty. In the workplace there are significant responsibilities and expectations and real-world consequences and Phil worried that after having struggled to perform well in the workplace in the past, he may once again fail to succeed. But for Phil the sandwich year, whilst anxiety provoking, provided a novel opportunity. One in which he could learn more about the type of person he was and what that might mean for where he best belongs in his industry. With this goal as his main motivation Phil applied for a placement in a large production factory in a project management position (a role he suggests is frequently adopted by engineering graduates). He knew from his research and conversations with others that the workplace he had selected was a large somewhat 'corporate' environment, one in which he never really saw himself belonging, and one which might require him to 'play the corporate role'. This was a role with which he had never really identified, but his life had changed so dramatically over the course of the past two decades that he wasn't really sure what he wanted anymore.

Phil described his experience of his placement year as being largely negative, he ultimately found that he was not suited to the corporate environment, and unfortunately, he had to undergo a year of hard experiences to come to that realisation. He described the factory as being very rigid in terms of rules and routines. Employees were expected to clock in and out precisely when scheduled, breaks had to last exactly one hour, if they ran over even by a few minutes a reprimand would follow. But Phil worked hard and worked long beyond his scheduled hours and so felt entitled to an extra ten-minutes

on his break here and there. His superiors' lack of appreciation for this fact, he felt, constituted a general lack of recognition of his efforts. Health and safety procedures were numerous and detailed, and it was each individual employee's responsibility to ensure they were enforced. Banisters had to be held when walking down the stairs, staff had to be stationary when taking a call, hard hats had to be worn in certain settings at all times, if anyone saw anyone failing to abide by such rules it was their duty to address it with the transgressor, irrespective of any positional hierarchy. Admittedly Phil under certain circumstances rather enjoyed the latter rule as he could make a game of calling out senior employees that he wasn't too fond of for their health and safety violations, but more often than not, Phil was the one found breaking the rules as opposed to enforcing them. In addition to the rigidity of the policies and procedures Phil experienced in the workplace, he also experienced a formality in his interactions with his colleagues, with people keeping their 'professional face' on for all workplace interactions. But Phil identified as being very person-centred, for him an essential component of a workplace is the atmosphere. He wanted to be able to form friendships that might even exist outside of the workplace, and whilst he could for the most part maintain the professional relationships that he was limited to forming, that wasn't what he desired. Further still, there was on some occasions, a complete lack of comradery or even professional courtesy. Phil recalled one incident where he had attended a meeting in where two of his colleagues were supposed to be in attendance to support him, but they had chosen not to attend. In this meeting, having been left on his own, Phil was assigned a task which he felt highly inappropriate for his position as a placement student, which subsequently resulted in him reacting very poorly to a senior member of the team essentially telling his boss "you've got no chance". Phil knew even at the time that he had not responded in the right way and later apologised, but noted that in general, the tendency to react inappropriately is a recurrent problem in his life.

Interestingly, Phil felt very competent in terms of the actual work that the role entailed. Whilst he had no expectations or real aims for the job as such before beginning his placement, he soon found through discussions with colleagues that there was a desire within the factory for an online system of resources. In wanting to make a significant contribution to the company during his time on placement and to work on something 'worthwhile' Phil put himself forward for the task of developing and implementing the online system. Such was the size of the task, that in hindsight he reflected he probably wouldn't have attempted it had he known the work that it entailed, and yet he felt proud to have accomplished it. In carrying out his task over the course of the year, Phil was provided with a budget of over £10,000 and a team of staff to lead, which he did effectively, ultimately producing a valuable resource for the company. And yet whilst he had put himself forward for a difficult task, worked hard at it and ultimately succeeded in it, both himself and his employers agreed that that

particular workplace was not the place for him. In Phil's case technical ability and even softer skills such as organisation, and the ability to lead a team weren't enough to compensate for the fact that the person he identified himself as, his values, and in many cases his behaviours, were not in fitting with the persona desired by his workplace. It did not come naturally to Phil to behave like his colleagues, to really think about his response before reacting, to maintain a constant level of professionalism, to stick to rules and regulations he felt overly pedantic. Whilst he recognised what was expected and desired in the workplace it was not in his nature to conform, which ultimately led to the realisation that a large corporate environment was not for him, he needed somewhere somewhat more flexible.

Since completing his undergraduate course, Phil completed his PhD and has recently obtained work as an associate researcher at the same university in which he studied. Despite his negative experience, he did not regret his placement as he learned a lot about himself and his professional identity which ultimately shaped his career path, albeit in an entirely different direction.

Sam

Sam is in his master's year of his automotive and motorsport engineering degree. He came to university having completed a manufacturing and engineering B-Tech course at college. Coming to university, to study on a degree he had assumed would be very practical, only to learn it had a big focus on the theory was difficult for Sam. He really struggled with the maths and found the limited number of practical sessions lack lustre in comparison to those he had grown accustomed to at college. At university, a practical session entailed tasks such as watching the stress and strain on a bike as someone peddled, and producing a written report to be assessed, at college he and his peers produced an off-road buggy from scratch - the two didn't compare for him.

Sam gained a placement position working as a support engineer working on car engines. He was hopeful before embarking on his placement that it would allow him to see where his knowledge from his university course applied practically, and more generally where the content of the course fit into the bigger picture of industry.

Sam described his transition into his placement year as 'horrible'. He had to move to a new area and lease an apartment alone, he was no longer close to his friends and no longer living with his family. He had to learn how to do things for himself, and only had a matter of days to adjust to his new area before beginning his first week on placement. When he arrived at his placement, he learned the first full day would entail driving to his new company's headquarters in London to collect his laptop. The next few days involved introductions to his team, a driver training course, and becoming acquainted

with company user manuals. In large part that was the extent of his introduction to his company, as within a week of him joining, his entire team left to work in America for over a month, leaving Sam behind to figure out his job almost entirely alone. Sam admittedly had some company during this period as a separate team stayed behind, but their role in the company was different to his own. He did however appreciate their presence and would ask for their help wherever possible. Over the course of the month he found himself being asked to do work for the remaining team whilst also trying to get to grips with his own tasks with little assistance, in his eyes it was a sink or swim situation. Sam worked hard and was confident to ask for help wherever he could get it, he would call his team in America and send emails across, he would consult user manuals, and speak to the other team, but he still found this period extremely difficult. This was exacerbated further by the fact that his team knew nothing about him, Sam was the first intern they had had and their introduction had been brief, they didn't know what he had done before or what he was capable of, they would send over emails asking him to do certain jobs that he had absolutely no experience with and didn't know how to approach. This resulted in lengthy email chains, where his team had to try to talk him through the process across different time zones. Further still, Sam as a student had to get much of his work signed off, so he was filled with uncertainty as to what he was actually allowed to do.

With time Sam began to settle into his placement, but there were still challenges to be faced. Working for a UK based German company he had to learn to navigate dealing with colleagues and clients based in different countries, he had to deal with language barriers and the ways in which meaning could get lost in translation. But he rose to the challenge, even drawing upon his GCSE German to try to converse with his colleagues in the office, which wasn't necessarily required, but he felt they appreciated his efforts regardless. Sam also had to learn from whom to gain information, and how to go about getting it which could be extremely difficult, particularly when dealing with the customers, but he felt these experiences developed his people skills.

Sam made a friend in his manager who he got on well with from the start. When his lease ran out on his apartment, and he was having to commute to and from work toward the end of his placement, his manager even gave him a place to stay with him. He also made a friend in a placement student on the other team who he would sometimes see outside of work. But in general, he was quite isolated, he didn't live anywhere near home, but he also didn't live near his colleagues which meant most nights he would finish work, make tea and go straight to bed. For company, he would drive the 300-mile round trip to go home and see his family every weekend. This was the aspect of placement he found hardest, and on the days where work had not gone well, he was aware of just how bad a frame of mind he could get into. Though this was incredibly difficult for Sam he recognised that it wasn't all bad. Because he had little to look forward to at home, he was happy to spend long hours at work, he

would start early and stay late and really engage with his job, creating a good impression with his colleagues, and he felt it meant he was able to get a lot more out of the experience. This was also helped by the fact that he worked on flexitime and was largely responsible for his own hours meaning if he worked hard enough in the week he could leave early and spend a longer time with his family at the weekend. Managing his hours in such a way he felt had helped him to mature, as did the independence of living alone.

Whilst his isolation was a challenge and his transition was problematic, ultimately Sam came to love his placement. With time, his colleagues began to understand his capabilities and he understood how they worked, and things began to flow much more easily. He was given jobs he was able to take full responsibility for and often he was even busier than his more established colleagues which he really enjoyed. They appreciated his strong practical knowledge that he had developed in his early education and often he would recognise issues with the cars that his colleagues that had worked there for years couldn't spot. Further still, placement students from other teams would come to him for help with practical tasks.

Sam found when returning to university that it was much more enjoyable than the first 2 years though he really struggled at first getting back into the routine. His theoretical knowledge had developed over the years, and the time away during placement had offered a welcome break from his studies. He had a renewed motivation, helped by the fact that he now knew how much he enjoyed working with industry and how important it was to get his degree and get back out there. He is currently meeting with his placement company in order to arrange returning to work with them after graduating.

Kevin

Kevin had always been passionate about subjects such as maths and science, so applying to study on a Mechanical Engineering course at his local university had been an obvious choice for him, as it allowed him to study his area of interest, all the while remaining at home. University had been a very different experience to what he had been previously used to. He was able to use his time between lectures to recap the course content at his own pace, and no longer felt there was the constant pressure of somebody monitoring him. As someone who is very self-motivated, the level of independence he was afforded at university worked well for him. He did well in the first two years of his course. He maintained high grades which he attributed largely to his work ethic and the support of his like-minded friends. Before his exams Kevin would rally his friends to spend days working through textbooks and past exam papers in an attempt to collectively revise, and they each appreciated the opportunities to group their knowledge and share their ideas.

For Kevin the most challenging aspect of his undergraduate degree was the practical work, though this was also the aspect of his learning he most enjoyed. Because he had taken the more academic route to becoming an engineer, he had very little practical experience. Theory he recognised was necessary, but to him it was almost pointless learning it if he didn't then have opportunity to personally apply it and see how it related to the practical side of things. Fortunately, his course included weekly trips to the local college designed toward building practical skills, but he often felt he didn't really know what to do there. Thankfully he had friends who had taken a different route from leaving school, and so had gained more practical experience before attending university. So often they would work together, with Kevin explaining the theoretical knowledge and his friends the practical. He found his college visits to be one of the most valuable learning opportunities at university, because they provided him with new insights, but without his friends, he felt at points that he would have really struggled.

When the time came for Kevin to apply for placements, he didn't really have much of an idea of what he wanted. He knew he wanted to stay close to home and he ideally wanted it to be a placement role that interested him, but ultimately after sending out numerous applications he just wanted an offer. After numerous rejections Kevin was eventually offered a role in the area of automotive engineering for a large international corporation at a site based close to home. The company was constituted of a variety of departments each of which specialised in different areas. As a placement student over the course of the year Kevin would work in four of the departments spending around three months in each. He didn't really know what to expect of his placement, he just hoped that at the end of it he would have a better idea of what an engineer's role actually entailed, something at that point he still had little knowledge of. Kevin started his applications early, and so had a significant period of time to wait between being accepted for the position and actually starting his job. He used this time as an opportunity to start contacting acquaintances that he knew worked for his placement company in a bid to learn more about his future workplace. Shortly after he accepted his position, he was provided an information pack, which included a sheet detailing fourteen different departments. He was instructed to rank these departments in order of preference. He used his contacts to gain more information as to which of the departments would offer the best learning opportunities, a strategy that on reflection had been very effective, as when he later saw the departments he had been told to avoid, he knew he had been well advised.

Kevin found his adjustment to his placement very difficult. He had gained plenty of work experience in the past, he had even gained three weeks work placement shadowing engineers whilst at school and yet his transition to this workplace was a real challenge. He struggled getting used to the 9-5 mindset. At university he had found success by working late into the night, so it took Kevin a while to accept that he could leave a job part way through to return to the following day. For months he

consistently stayed late, until his manager had to have a stern word with him about adjusting to his new routine. He had to get used to working in a professional environment and it took him a while to remember not to ask permission to do certain things and to realise the extent of his independence. He had assumed that he would be constantly accountable to somebody who would need to know his whereabouts at all times, his boss had to reprimand him once again, explaining that he didn't need to keep reporting to him, nor did he need to keep asking for permission, he was supposed to just get on with things.

The early weeks of Kevin's placement were the most daunting and he recalls feeling overwhelmed in the beginning. When things went wrong, he felt like it was the end of the world. On his first day he recalled being bombarded by information and spent much of the day just trying to figure out what it was his team actually did. His second day consisted of meeting after meeting in which he struggled to understand what was being discussed. Only at the end of that day was he able to clarify some of his questions with a colleague. He wished the first week had involved a greater focus on explanation, he needed someone to explain what was happening and what was expected of him. He also struggled with the language of his workplace. Often his colleagues spoke in acronyms and simply assumed he would know what they were referring to, he would attend meetings where it felt like the entire discussion would be made up of acronyms and he didn't understand any of it. He was grateful that at this point at least he had a source of support in his placement manager, a person whose role it was to assist placement students specifically, and often in those initial weeks Kevin would go to him with a long list of questions.

In general Kevin is the type of person who takes a while to get used to new environments and particularly before his placement he was quite shy. He often felt that he didn't know if he was doing things the correct way. But he didn't want to ask too many questions based on the perception that he would be bothering his colleagues and so he would often attempt to solve problems alone before eventually finding somebody to ask for help. When faced with the challenge of getting used to the company's software, Kevin found himself taking a day to do work that could be done in minutes because he hadn't yet become acquainted with the different ways of working, his colleagues had set up shortcuts and map-keys to significantly reduce the time requirements, but it was only once people stumbled upon problems with his workflow that he would learn the easier, quicker techniques. On one occasion however one of his colleagues took the time to show him some tips and tricks that he had developed over the course of time that he had worked for the company and as Kevin moved through his rotations he was then able to share that knowledge with others, contributing to the understanding of some of his more well-established colleagues. But for Kevin one of the biggest issues in his transition to the workplace was the fact that he didn't really know anybody

in the beginning. He joined the company slightly later than the other placement students and he felt like an outsider. Each department was designed to have only one placement student at any given point so there was little overlap to enable connections to be formed. With time however, his fellow placement students became one of his greatest sources of support. If he had a problem, he would go to them for advice and listen to their stories about what they had done in similar situations. Kevin's company also encouraged placement students to take part in affiliated voluntary projects to help out in the community. Typically, placement students were encouraged to volunteer four hours, Kevin ended the year having done around 60. He was emailed with multiple opportunities which he was happy to accept as they were something different to do, and each time he took part he got to meet new people across the company. They were excellent networking opportunities and one of Kevin's favourite things about doing a placement was getting to meet new people and learn the diverse ways in which they had reached their current positions. With time he was even able to start meeting up with his colleagues outside of work where he could then see a different side to them.

In time Kevin grew to really enjoy his placement. The design of the scheme meant that as he made his way through his rotations, he was able to experience different departments and was able to work in a range of roles which helped him to build a picture of the various types of work an engineer can choose to do. Between placement rotations Kevin received feedback from his department managers. At the end of one of his first rotations Kevin's feedback was quite negative with regard to his communication skills, and though he tried not to let it affect him too much his feedback stuck with him. From that point on he made efforts to ask his managers for more regular meetings and feedback on where he needed to improve, so that he would still have time to make changes. As he progressed through his placement, he built up a reputation of being skilled in certain areas, and he found that with each rotation he was able to settle in more and more quickly. Often his new department managers would reference the positive comments they had heard about him from his prior rotation and it allowed him to eventually feel like he was on a level playing field with his colleagues. Right the way through his placement Kevin continued to learn new things. The way he approached these learning opportunities varied, at times he would observe his colleagues before making his own attempts, at other times he would attempt to work alone and self-assess whether he needed help, particularly toward the end of his placement when he had more experience, but then when working on particularly complex programmes where the chance of making big mistakes was high, he was helped to work through his tasks step by step. He found his confidence grew significantly as he progressed through the year.

When Kevin's placement ended, he felt like he had changed a lot, though he struggled to articulate exactly how. His experience had showed him the light at the end of the academic tunnel and motivated

him to continue to try to succeed in his degree in order to gain a position in the automotive industry in the future. And yet while his placement experience had motivated him, he found himself struggling in his return to university. It felt to him like a step backward in terms of career progression to transition from working as an engineer to returning to working on assignments and attending lectures. He once again had to reframe his mind-set to work into the night as opposed to switching his mind off from work as he had eventually learned to do on placement. He felt as though he was under more pressure because his work now impacted his degree as opposed to a work project, and he also found it difficult to return to university and have less opportunities to ask for help when he was unsure of anything. He was eager to return to work.

Antoni

Antoni is an international student who began his higher education journey whilst studying in Poland. Two years into his materials engineering degree at a Polish university he and his fellow students received a visit from a representative of an English university who explained in English about an exchange programme from which they could transfer to the UK university to complete their degree, on the condition that they repeated their second year, to account for differences in the course content. At the end of her speech in fluent Polish the representative explained, “if you understood 50% of what I just said you are ready to study in the UK”. Whilst no one else on his course chose to make the move, Antoni lived by the rule to always do what others will not. He had been learning English for many years and had worked summers in Greece where he relied on speaking English to communicate, so he felt confident in his communication abilities. Thus, shortly after the visit, Antoni made the decision to transfer to the UK to study mechanical engineering.

The move to UK education had been much more challenging than he had first expected. He wondered whether there was an element of business at play when the exchange programme was sold to him, in Poland his education was free, in the UK he paid tuition and he began to suspect that he had been given a somewhat rose-tinted impression. He found himself struggling to understand and keep up with the lectures and found himself turning to learning from Youtube videos which he could watch at his own pace. Whilst his verbal communication had been ok, he realised how much more difficult it was to master written communication in another language. He struggled with the focus on independent learning that he felt featured in UK higher education much more prominently than he had experienced in his Polish background. He faced a constant struggle for money, sleeping in poor conditions and struggling to make university his priority as he worked to support his living costs.

Antoni's experience became harder still when the time came to apply for placements. As was expected of him, he attended the placement lectures and accepted the placement unit's help with his CV but

he had no luck in obtaining a position. He sent out in excess of 60 applications and attended seven interviews to no avail. Before his final interview he had come to the realisation that the likelihood of gaining a placement was slim. It was late in the year and he had applied to everyone he could. With this realisation in mind he took a job with McDonalds with a view to bypassing a placement year to progress immediately to his final year. On his first day at McDonalds he attended his final placement interview, and despite his lack of success up until this point Antoni felt relaxed, he had accepted that he would not obtain a placement and had come to terms with his new plan. When he attended the interview, he took it as an opportunity to simply have a chat and learn more about them, but to his surprise Antoni was offered the job, which he believes probably resulted from his new relaxed mentality.

Antoni's placement company specialised in cash handling, they had offered him the role of mechanical design engineer, designing mechanisms to be used in cash machines and self-checkouts. In his first weeks, Antoni received little formal training, he got the impression they had been too busy to train him properly. He was left for the most part to figure things out on his own. Whilst he wished he had been offered some sort of training scheme, as he knew were sometimes available, he did feel in some respects that being left to figure things out was a good thing, as it allowed him to work out who could help him and what they could help him with, where he should look for resources, who was good at certain things and who was not. He felt that whilst some people may shrink away and panic about not knowing what to do, for him it was important to get on with the job at hand because his colleagues were expecting him to.

Antoni was initially set to work on simple tasks that from his perspective should have taken a matter of hours, but he was instead spending days on them, fearing that if he were to do a bad job it would affect his colleagues' perceptions of him. He knew that now it wasn't a matter of completing a task and getting feedback from a lecturer, his designs would be produced, money would be spent. This pressure to do well stayed with Antoni for a long time throughout his placement, only dissipating gradually as he was steadily given more and more important jobs. Ultimately however, he needed to ask his supervisor for feedback, he knew that he could either sit and worry that he wasn't doing a good job, or he could address it head on, ask for feedback and learn what he could improve. He had in the past had hints as to how he was doing here and there as he reported back on his work, but never anything formal. When he sat down with his supervisor he was reassured, he was being sent to Germany to demonstrate to his colleagues at their subsidiary company how to fix a certain mechanism, had he not been doing well his supervisor explained, he wouldn't be going. At one point his supervisor even entertained the idea of even sponsoring Antoni to do his master's year, but unfortunately in the time between leaving his placement and completing his final year a restructuring

took place which saw his supervisor promoted to the US, and his successor did not follow through on the offer. Antoni however chose to look at this positively, for now he was content to gain more experience, studying a master's degree could be something for the future.

Antoni's placement year was his first experience of working in engineering, and so he had no frame of reference with which to compare his experience at his company. But having spoken with friends since returning to university he came to realise his company had been a good place to work. One of his friends worked in a company where her tasks remained exactly the same day in day out, another worked in a field where the technology had remained stagnant for a long time, Antoni's company in contrast involved mechanical engineering, software and electronics, there was a great deal of variety. His office space was open plan, everybody was assigned their own desk but there was the freedom to walk around and speak to one another. He always felt they were happy to help and got the impression that they were just happy to chat as often tasks were intense and solitary and it would be a nice reprieve just to have a bit of interaction sometimes. Antoni was surrounded by people working in a range of roles, beside him someone writing software, to his left a mechanical engineer, in front a project manager. Sitting amongst colleagues who work in various fields of engineering he was able to develop a new level of appreciation for the differences in their role, while once he might have held misconceptions such as the notion that designing a physical object was more complex than designing software he now understands and respects where each respective field has its challenges. In the earlier half of his placement, conversations with his colleagues were what helped him get through. When he would commute to work, he would travel with one of his colleagues and during these journeys he was able to learn more about the perspectives of others, both in terms of differences in job roles but also in terms of hearing office gossip and complaints. He was able to build an understanding of the world of work, learning that it is not solely about design and production but about working with others with different mentalities, dealing with differences and finding ways to get along.

Antoni's number one priority in undertaking his year of work was to make money. He wanted to return to his final year fully dedicated and without distraction, so he set to work saving fifty percent of his salary to enable him to fully commit to his studies when he returned. But he also hoped that whilst on placement he might find an idea for his final year project. Having found his UK studies so far to be such a challenge he felt it would be a good idea to find a project on placement and familiarise himself with it in advance. As it turned out, Antoni was set to work on a project for a client who had complained that one of the mechanisms to their machines was too noisy. Within a month Antoni found the solution. When he returned to university Antoni looked into this issue in much more depth and turned it into his final year dissertation, for which he was awarded the Institution of Mechanical

Engineers project award presented to one nominated student per university for an outstanding dissertation project.

Antoni was offered the opportunity to return to his placement workplace as a graduate, contingent on his gaining at least a 2:1 degree. He returned to university feeling more motivated than ever to gain his degree and having no external work commitments he completed his degree having gained a first class. After graduating, he returned to his company, though it was somewhat bitter-sweet. He realised now having gained a first class and being the recipient of an industry award that he might just be able to compete for positions in those big companies that engineering students dream about, but for now his immediate need for a steady income outweighed his desire to seek a better position, for the time being, his ambitions would have to be put on hold.

Tom

Tom was able to gain a placement position as a design engineer working in a small office for a medium sized company. Going into the position, he expected that he might be thrown in at the deep end, with the knowledge he gained at university being put to the test. These expectations as it turned out had been quite accurate. Tom entered his new company at a time of change, within his first week the senior engineer that had been tasked with hiring him had been fired, meaning Ross, the mid-level engineer taking his place, had then had to contend with accustoming to his new interim position as senior engineer (a position Ross didn't want) and managing a new placement student, something he admitted to Tom he didn't actually know how to do. The loss of a key member of the team also meant Tom had little time to acclimatise to his new workplace, they needed all hands-on deck. But this was a welcome change from the basic tutorials with which he had been initially provided as he knew even at that point that he tended to work best under pressure. Training came by way of a crash course as and when needed, but his colleagues were always on hand to ask questions where required. Thankfully Tom also knew the placement student from the year prior who had briefed him with some pointers as to what he might need to know about the company's software, and so with limited preparation from his friend, a few days-worth of practical tutorials and the help of his colleagues Tom was able to immerse himself in his work almost immediately.

Despite Tom's sudden integration into the company, he felt he settled into the office quite seamlessly. But soon after settling into the routine of placement, Tom experienced yet more upheavals. The entire office moved to a new location and with this move came a new open plan structure. Shortly after the entire team had a new computer system installed, and further still the team were then tasked with developing a range of valves which were completely new to the company as a whole. Though Tom found himself facing adjustment after adjustment, these changes were somewhat different to those

he had experienced earlier, in that they had affected everyone similarly. Like his colleagues Tom had grown accustomed to the way he worked previously, and like his colleagues he was used to working in their existing office. It was a lot to learn and a significant change for all involved, it required innovation and adjustment on the behalf of each employee. But this time Tom felt that as he worked his way through the changes, he was progressing with the company, he and his colleagues worked together to master their new computer system and to optimise their valves.

Working in a medium sized company enabled Tom to get involved in a lot of different things, meaning he gained a lot of technical knowledge. But while he appreciated that opportunity for his placement learning experience, he also felt that in the future he might prefer to work somewhere much bigger. In his eyes a bigger place meant more to aim for, he learned from his time at a medium sized company that opportunities for progression and promotion were limited, and he felt that with the potential for promotion came increased drive and motivation. For his time on placement however Tom was happy with the work he was provided. He knew going into this placement that there would be periods of down time where engineers had little to do, he had been warned of that at his interview, and there were of course tedious tasks, but more often than not he was kept busy, and learning opportunities were offered to him wherever possible by Ross his senior engineer who had assured him he would try and tailor the tasks to Tom's year in industry as much as possible

Tom was permitted by his superiors to move around and experience many aspects of the company. He learned from this to what he was best suited. Though he had always felt as though he was skilled in design engineering and whilst this was the area he preferred, he learned from time spent on the shop floor that he was much more suited to the production side of engineering, it came much more naturally and required less explanation. As to whether he would choose one over the other in the future he still didn't know.

Whilst Tom had many of the responsibilities of a fully-fledged employee from a very early point on his placement, he never classed himself as an engineer and still firmly considered himself a student. To do otherwise felt peculiar to him, so much so that he even suggested that after graduating and gaining a position as an engineer he still wouldn't refer to himself as an engineer. He wasn't in his own opinion a professional person, even though he did what he needed to in order to succeed on placement, there would always be people that knew more. For now, Tom's career options remain open, his focus post placement simply remains on getting the best grade possible.

Regina

At university, on her computing studies degree, Regina is a model student. She is motivated, intelligent, ambitious and well-respected by her tutors. She is the type of student to consult guidance documents to learn exactly what is required in an assignment, and if she remains unsure, she talks with her tutors for clarification, as a result she gets consistently high grades. Beyond her immediate studies, she searches for opportunities to better herself, attends conferences and events designed toward professional development and has even won a scholarship to attend a conference in America. Such is her enthusiasm that her tutors know to message her directly with details of events that she might like to attend. And she has been working on building a strong online portfolio since early on in her undergraduate studies, after following the advice of one of her lecturers. It is therefore unsurprising that when Regina set out to obtain a placement position as a front-end software developer for a large, well-known multinational corporation, she passed through each of the 5 highly competitive stages to become just 1 of 120 students to be hired out of over 8000 applicants.

She first became aware of her placement company during the first year of her undergraduate studies when she attended an event they were holding for women in technology. It was at this event, speaking to that year's cohort of placement students where she realised that this was the company that she had to work for. But her placement application journey was not always easy. The application process was long and complicated, spanning over half of her second year of university, and she knew no matter how much she wanted it there was a good chance she might not get to work for the company of her choice, and so in the meantime she began to apply to various other companies. As with her studies, she used the resources available to her and consulted with the department's placement team who gave her help with interview practice and CV development. And yet in the beginning, she found herself facing rejection after rejection. But rather than letting these rejections phase her she chose to look upon them as learning experiences. With each interview she grew in confidence and gradually learned how best to talk with interviewers, and with time and perseverance she found success. She was offered multiple placement positions.

Eventually, Regina accepted a position, which wasn't the placement position she had coveted, but it was a very good offer and so she signed the contract. When she subsequently got the offer from the company she truly wanted to work for therefore, she found herself in quite the predicament. Typically, the department's placement team has strict rules when it comes to accepting a placement position, they ask that students accept their first offer, and once an offer is accepted the students must decline all others. But Regina went to the placement team and spoke with them about her situation, she read over her contract multiple times and with their help she politely rescinded her acceptance in favour of her latest job offer. Fearing, some form of repercussion, Regina couldn't quite believe it when the company instead of chastising her, began to compete for her, offering her a better position in order

to make her stay. But she knew what she wanted and stood her ground. Shortly after, she moved to London to work for the company she had been hoping to work for, for the past two years.

Moving to London was a big adjustment, it was nothing like the city she had moved to from Romania just a few years earlier. It was busy and hectic, and she found herself disliking it initially. But she was fortunate, her company in the months before her placement began held social events where placement students could begin to meet, and here she made two good friends with whom she had arranged to live for the duration of her placement. Her brother was also in London after moving there for work five years prior, and so despite living somewhere new and unfamiliar, she had friends and family nearby and she soon adjusted to the city.

When she began her placement, Regina couldn't have been happier. Her team was made up almost entirely of international employees, who like her, saw England as their second home. She found herself fitting in immediately and made friends so much quicker than she did at university. She was the first placement student that the team had been allocated and she worried how they might respond to her presence, but she needn't have worried, her colleagues welcomed her with open arms and were completely understanding of her unique position as someone with little experience but an eagerness to learn.

As part of her placement scheme, the company designed a range of voluntary projects with which the placement students could choose to be involved, and though her team had no knowledge of these projects, they were supportive of her taking time out to take part. Regina elected to participate in projects that took her around the country; she helped to design and run a hackathon, attended careers fairs to promote the placement scheme, and attended universities where she would do talks to encourage women to pursue careers in Computing. From these opportunities Regina gained confidence. When she began her placement, she had been shy, but with time she found her confidence and communication improving dramatically. She had been so inspired by her latter project that she even sought to bring it forward and replicate it in her own university when she returned to her undergraduate studies. She recognised that her tutors often only sent invitations to events to her specifically, and she felt that in some ways it was quite unfair when many of her fellow students would also like to do more to progress. She also met a lot of inspirational women whilst on her placement, one of her mentors in particular had been a highly successful woman who often told her stories about what it was like getting to her position as a woman and gave her lots of advice, and Regina wanted to share that with others. Despite knowing, she had little time left at university when she returned from her placement, she set up a group for female computing students designed to enable the women on her course to support each other to succeed in what is ultimately still a male dominated area.

Beyond her additional projects, Regina's main role involved designing and testing a feature of the auto-suggest function of a well-known search engine. It was a role that she was told she was extremely lucky to have, it was highly visual and had the 'wow' factor because it was something that anyone could go online and see, she was told it wasn't something a placement student could typically expect to work on, but then, she had earned the right to do it. Shortly after beginning her placement Regina was told about the project and asked to investigate it, she was told she needed to write up a proposal as to how she would tackle it if the project were hers. She wondered whether she was offered this chance because her superiors recognised in her that she liked a challenge, that she wouldn't be content to work on smaller less significant projects. Whatever their reasons, Regina was pleased for the opportunity to prove herself and worked hard on her proposal, she tried to get across her passion for the project and ultimately was given the role of lead developer, which meant that she would do the vast majority of the work under the supervision of her superior whilst also consulting with a team based in America. In order to succeed in her work, Regina often drew on the knowledge she had gained from her undergraduate degree, but she also had a lot to learn as she went along, she wanted to keep up to speed with her colleagues, to have informed conversations and for her project to be a success, but despite a lot of the technical knowledge being beyond that which she had learned in her studies Regina remained confident in her abilities. With time, she had learned the protocols and procedures, and she found an effective way of working whereby she would find a balance between doing her own research and learning independently where possible and consulting the relevant colleagues when required. She only began to feel truly anxious about her abilities when she realised her project might actually be a success. The company runs a lot of projects like the one she was working on, many of which never really make it past the testing phases, she knew this going into it. So, when hers passed the testing phases, to the point where 3% of the website's users were able to sample her feature, she started to feel the pressure, even more so when she learned her feature had been extremely popular, so much so that it was going to be shipped live on all versions of the website for all users. Despite her fears, Regina successfully navigated her project from start to finish, and her aspect of the autosuggest feature is now available online for all to see and she feels highly accomplished as a result.

Regina feels that she has changed a lot since placement, she of course learned technical skills and improved in her confidence, organisation and teamwork, but more than that she left London and returned to her studies with renewed motivation and ambition - she felt inspired. The people she met whilst on her placement were different to those she had come to know on her degree. At university, her peers weren't all that interested in talking about work, they didn't really have any 'big ideas', but on placement Regina's peers were passionate and driven, their CVs were fantastic, they had so many varied experiences and were so successful at such a young age that it made Regina take stock of her

own achievements and strive to do more. Her room-mate had been highly successful and had done so much by way of professional development that Regina wanted to be like her, her mentors and been so inspirational that she wanted to learn all that she could from their stories and advice, her colleagues had gained Master's degrees and PhDs and she too wanted to be as qualified. She couldn't help but compare herself to them despite her superiors telling her not to be disheartened, that of course she at her undergraduate level would not know as much or have as much experience as them. After being so successful at university, placement was a chance for Regina to meet people who truly impressed her, who challenged her to want to be better and push beyond her current progress. Since returning to her studies she has applied her renewed enthusiasm to continue in her search for further development opportunities. She has obtained a summer placement at another renowned company, immediately after which she commences her master's degree at a high-ranking UK university. Regina literally couldn't fault her placement; it had been everything she hoped for and had contributed yet another positive experience in her journey to becoming a professional in the computing industry.

Chapter Five - Thematic Analysis

As outlined in the earlier method section, in order to identify patterns of meaning across the data set, I conducted a theoretically underpinned thematic analysis, following the procedure outlined by Braun and Clarke (2006). The themes I identified each captured something important about the data in relation to meeting my research aims and thus enabled the generation of deep insights into the psychological mechanisms underpinning placement learning. Each of the themes were prevalent across each interview and were highly salient for each of the interview participants. The breadth of data gathered through social media did not generate the same depth of insight into the individual learning experience of placement as I was able to gather through semi-structured interviews. There was, however, evidence across the Facebook data set to support the existence of the themes beyond just the experience of the 12 interview participants. Three themes relating the process of learning on placement were identified from the data: 'integrating learning', 'incorporation and identity' and 'negotiating relationships; the dynamics of power' (a table outlining the codes constituting these themes can be found in the appendix (Appendix 15)).

Theme One – Integrating Learning

Theme one presents an analysis which explores the process of knowledge integration between the context of placement and related experiences of work and academia. Initially explored is the way in which students on placement use their experience to better relate to the content they learned in earlier years of work and study. This precedes an exploration of how students apply the skills and knowledge learned in the early years of academia to their learning and practice on placement. Toward the latter half of the theme, the return to university is explored in relation to the process of integrating placement learning into the academic context. To meet each of the study aims, the analysis depicted in this theme explored how students experienced knowledge integration on their placement programme, the meanings they formed in relation to experiences of knowledge integration, and their perceptions of the practices which facilitated and hindered this process. Applying sociocultural theory to these experiences, I explored the mechanisms underpinning how knowledge integration influenced placement related learning and identity development.

For many of the students in the current study, the work placement year was viewed as an opportunity to gain some hands-on experience of working in industry. Before their placement, many admitted that like Sam in his narrative, they had struggled with the heavy emphasis on theory and felt their practical sessions had been lack-lustre.

Kareem: "I was hoping to sort of gain more practical skills the thing with the course at university is its very, there's a lot of theory and the practical things you do do are very lab based, and they kind of focus towards things you might do as a researcher rather than things you would do in industry". [Interview 12]

For Mathew, the abstract nature of much of his course meant he had struggled to understand certain industrial processes. On placement however, he was able to clarify his course content with a frame of reference developed through a lived experience of seeing and working with the processes first-hand:

Mathew: "Someone could sit with a PowerPoint and go through how it all works but then to go and actually physically see it, so erm what's it called Kanban which is how you order parts which is like 2 bins and as one bin empties you replace it and then as you're replacing that bin you use the parts in the other bin. And I remember we had like an hour lecture on this and the history of how it all works and I didn't understand it and then I went and saw it ... And just to actually physically see that happening was like why did we have an hour lecture on that that made no sense? ...It just seems common sense to me once you saw it". [Interview 8]

To integrate evidence into practice requires a complex process of converting explicit and tacit knowledge into activity, to apply this in practice a person must to make sense of the information in the context in which it is used, this process of meaning making can be enabled by discussions with colleagues and by observing the way in which others apply the knowledge before then attempting one's own application (Li et al, 2009). At university Mathew learned about industry procedures in the form of didactic lectures, but without a contextualised frame of reference, he struggled to understand the processes being described. Having begun his placement and witnessed and experienced the process in use first-hand, he was able to visualise the procedure and its purpose much more clearly, facilitating his understanding through the integration of his theoretical knowledge with observations of its direct application in industry.

For some, conceptual knowledge was viewed to lack value when there was not a solid understanding of where and how it can be applied in practice:

Kevin: "the theory is kind of it's alright but unless you can physically see what your applying the theory to, it's sort of, to me it seems a bit pointless perhaps". [Interview 3]

Sam: "I wanted to apply what I'd learnt at uni, I wanted to see where it fit in if that makes sense because it's alright learning all this stuff but if you're never going to use it, it's a bit pointless". [Interview 10]

In some instances, this perception led to a propensity for disengagement:

Mark: "I probably just didn't take as much note at uni as I should have, I didn't think a lot of it would be applicable". [Interview 4]

Many students upon commencing their placement were however able to gain a better insight as to the relevance of their practical sessions and theoretical lecture content and began to better understand how what they had learned at university formed a necessary contribution to the development of competence within their profession.

*Kevin: "You can develop a massive design for something and there can be eight or nine different ways of making it and it's sort of, I didn't really think about it before... I looked back at what I'd done in my first and second year and like 'oh actually yeah this is what we've got at *Placement organisation name* but if we send it somewhere else its cheaper and they've got this tool and so we can do it that way instead". [Interview 3]*

Adam: "Pre-placement I didn't really care much about the content of the course because I couldn't see how it related to the outside world it was very contained. I also do not possess an aptitude of coding from scratch, because of the focus on this I wasn't able to find ways to get around this problem which would be available in the real world such as Wordpress, Joomla, Bootstrap and other frameworks you can make use of...however by going on placement I saw how the skills were translated into a real world environment". [Facebook group]

Will: "I was working in a pharmaceutical environment working with a lot of machinery and a lot of products that you've never seen before in your life, and you can only understand that if you've done a degree to actually get your head around it". [Facebook group]

For Mathew, work placement participation fostered the development of new epistemological understandings as to what it means to learn as an engineer, from his experience of working in practice he came to realise that university cannot teach what it is to be a competent engineer in every workplace, because competence differs as a consequence of context, instead they must teach the general principles of engineering to then be adapted and applied as required by the workplace:

*Mathew: "They can't teach how *placement company* build a car because *other car company names*, everyone does it differently and not everyone wants to go into car manufacturing, so it's very difficult for uni. They have to teach general engineering and they try and cover everything but that was the biggest thing I found or one of the things I found in industry was erm just how different it is and how specific things are to *placement company name* ... I feel like an engineering degree teaches you the really basic stuff but then you have to really apply it in a way that the company wants you to apply it". [Interview 8]*

Many students were able to learn through placement participation where general skills and principles learned at university underpin tasks within the workplace.

Tom: "No, it was different to what I'd done I'd never erm 'cause it was all about your pressure of your flanges and things like that your pressure of your bolting cover and we hadn't covered that at uni, so that some was something I learned on the placement, but the principle was the same. It's all just maths it's all calculations but applying it to that was different so that was something I learned there." [Interview 2]

Martin: "No in fact actually we didn't do anything on statistical process control until fourth year so I knew more about that when I came back than I did before I went, we'd done all the maths was useful especially looking at statistics because I'd done statistics at A level but it had

been such a long time if I hadn't covered it in second year I'd have probably struggled to pick it up as fast as I did". [Interview 7]

Kevin: "I was hoping to get some experience of where my university knowledge would be applied in the real world, rather than the mainly theoretical environment of university. It was kind of surprising that the majority of the subject knowledge did not directly apply to the work that I was doing, although I think if I had not studied the subjects I would have been at a disadvantage, as it laid the foundation skills required for me to find information, use new software, and even work better as part of a team". [Facebook group]

For Kevin, an ability to recognise where his university knowledge applied on placement also served as an opportunity to identify how much he had actually learned whilst on his undergraduate course.

Kevin: "I learnt so much and sort of I didn't really realise how much I'd learned until I was on placement and I was like 'oh I know that!'". [Interview 3]

Though many of the students suggested they had come to recognise the value of theoretical knowledge and had identified instances of where it applied in industry, the suggestion that students struggled to engage with this aspect of their learning prior to placement is somewhat problematic. Particularly so where certain students suggested they had then felt almost completely unable to form these connections between the two contexts:

Phil: "it's quite theoretical a lot of it so what I was able to bring from my actual first two years probably quite a, I wasn't necessarily in engineering prior to that but I had a very strong practical background so that would probably dominate and did dominate and even now I kind of think to myself in a kind of priding myself ironically in saying even after a degree I've still managed to have learnt nothing and kind of behaved like the erm sledgehammer type I was before you know". [Interview 1]

Robert: "University, erm, not a lot, is my first opinion to that. I think with the concepts and the engineering understanding of problems yes to a degree, but I didn't really use as much in my work experience where I worked in manufacturing. I'd say I gained a lot probably more from my placement than university". [Interview 9]

Kareem: "I'm pretty certain most of the things I learnt at university I didn't really use on placement". [Interview 12]

Litzinger, Lattuca, Hadgraft, and Newsnetter (2011) propose that the knowledge of experts and novices has been demonstrated to differ both qualitatively and quantitatively. New learners, they argue make only superficial connections between their knowledge and the domain in which it can be applied, whereas expert knowledge is organised based around key concepts and a clear understanding of the domain. The ability to transfer knowledge however requires this 'expert' understanding of general principles and the specifications of the contexts in which it would be of use. And so, they argue, learning environments must be designed in a way that assist students to develop contextualised knowledge as opposed to leaving them to learn on their own the conditions under which their knowledge and skills can and cannot be applied. Thus, Litzinger et al suggest, instructors must create

effective learning experiences which support the development of a deep understanding which is centred around: key concepts and general principles, the development of technical and professional skills, and the application of knowledge and skills to problems representative of those they would experience in professional practice. This has been described as a deep approach to learning and has had a significant volume of research dedicated to its study, part of which has demonstrated that where students approach learning with different intentions, they will adopt different learning strategies. If students in the present study as many suggested were unable to see the use of the theory, its relevance to industry and its value to their development as engineers, their intentions to learn it and thus their approach to learning must have been affected.

One engineering student Mark, provided a salient example of this. Mark explained that whilst on placement he had been unable to fulfil his role as a design engineer due to a lack of knowledge about machinery. Initially he had attributed this issue to be a result of a lack of practical experience, however upon further reflection he began to recognise where an inability to engage with his supporting lectures had exacerbated the issue:

Mark: "In hindsight, if I'd have took note more in sort of the practical lectures not the practical sessions that we went off and did at the college, but in the lectures where they were talking about the practical side of engineering that would have been miles more useful than it actually was. 'cause I probably didn't take note as much as I should have knowing that in the end I was going to be designing stuff using that machinery... I think it would have helped more if I'd have took more notes". [Interview 4]

Mark described how he had begun his placement in the company's design department where he worked for a few weeks, before his colleagues eventually came to deem it necessary to send him to work on the shop-floor, to build a foundation of understanding about the potentials and constraints of the machinery used to produce his designs. When asked why he felt it was that his training was altered in this way he explained how his lack of practical awareness had hindered his ability to fulfil his role as a design engineer.

Mark: "I sort of didn't know what I was doing, I could use the design software and I could design anything that they wanted me to draw on the screen but how they go about making it in the workshop, I didn't have that knowledge in my head... I was going on with my merry way drawing stuff thinking oh this looks good and then they'd be like 'but how are they going to make it though?' And that's just that's the side of it I just hadn't even thought about". [Interview 4]

Mark's introductory experience in the workplace had resulted in him feeling as though he was ill prepared for work, an issue he attributed in large part to his course but also to his own failings based upon the notion that he should have been better able to translate his university experiences to an understanding of how his workplace machinery worked, and in what ways that impacted his own role.

However, Mark also made reference to the fact that he had felt his colleagues did not know his capabilities, that they had been unfamiliar with placement students and had assumed he would be more capable than he was:

Mark: "They were actually looking for a full time engineer a design engineer... I sent them a letter saying do you want to take on a student for a year and they said yeah basically". [Interview 4]

Mark: "I don't think they knew how much I knew, I don't think they'd done it before, I don't think they'd took on a student before". [Interview 4]

Mark: "I think I was expecting to be eased in a bit more erm because I don't think they really knew what they were getting I think they thought I could do a lot more than I could". [Interview 4]

It is interesting that Mark felt that his company's lack of familiarity with placement students, meant they were unaware of what he should and should not be capable of at this stage in his learning, but still appeared to feel that his inability to perform his role resulted from his own shortcomings and those within his course. Mark appears to have adopted a perception associated with a cognitive perspective on learning, that is, where learning involves the individual acquisition of knowledge and skills, an inability to integrate said knowledge must therefore be the fault of the student. Learning however is a complex phenomenon and whilst Mark's inability to engage with his course content may have contributed to his initial struggles on placement, this had not been the only influential factor.

Lave and Wenger (1991) stress that it is more important to explore what kinds of social engagements provide the best context for learning to take place than to focus solely on individual cognition. They reject a view of understanding as the acquisition of knowledge but instead suggest it involves building increased access to participating roles in expert performances through the process of legitimate peripheral participation. Through legitimate peripheral participation a person's intention to learn becomes engaged and the meaning of learning is formed in the process of working toward full participation in practice (Lave and Wenger, 1991). This can be achieved in a variety of ways including special assistance, lessened risk and responsibility, increased supervision or lessened production pressures and must involve access to the three dimensions of practice: mutual engagement with other community members, with their actions in the negotiation of enterprise and to their shared repertoire in use (Wenger, 1998).

The partial participation of new members provides access to sources for understanding through a growing involvement in practice. As a place where a learner is able to work toward more intensive participation, peripherality is empowering, it provides an observational look out post alongside experiences of participation so that the learner may absorb and become absorbed in the culture of

practice and gradually assemble an idea of what constitutes their community's practices. Legitimate peripherality is important for developing naïve perspectives or questions. As a legitimate peripheral participant, inexperience becomes an asset to be exploited, but only where supported by experienced community members who appreciate its limitations and value its role (Lave and Wenger (1991).

In Mark's description of his early weeks on placement he explained that he had received no training, as his team had originally planned for the role to be taken by an established design engineer, and he felt they had little awareness of his limited capabilities as a placement student. He began his role by working in the design department and only as his team came to realise his designs could not be produced was he given the opportunity to become better acquainted with other aspects of the company, a knowledge of which he felt had been necessary for his role. Mark's reflections thus suggest his introduction experience was one of a lack of peripherality. Though he was inexperienced, he felt as though he had been expected to fulfil the full responsibilities of his role immediately and was not initially able to exploit his inexperience to gain the space required to build a preliminary understanding of the nuances of what his role entailed, within that particular community. As a new member of the workplace he was in unfamiliar territory, he did not yet understand the subtleties of his enterprise as defined within his community, but he felt in hindsight that he had immediately taken the responsibilities and pressures of someone who did.

Mark had assumed based on past experience, that using the software competently to create an aesthetically pleasing design was enough to merit good practice. With limited practical experience and having never had to design something that would actually be made before, he was naïve to wider processes impinging upon the task. To reorganise his thinking in relation to design engineering, required for Mark the existence a Vygotskian learning relationship, from which his abilities could be assessed, and constructive teaching and feedback could be offered to enable him to build upon his current abilities and work toward his full potential with the help of others. Only when his colleagues drew his attention to the fact that successful practice must move beyond producing a design which looks good, to producing a design which can actually be produced did Mark feel able to look beyond his immediate task to see the bigger picture. This guidance was something he insinuated he had required much earlier in his experience. In Kevin's narrative it was suggested that upon receiving negative feedback about his communication he began to seek out feedback on his performance more regularly. Like Mark, only once he had gained an opportunity for his performance to be assessed was he able to recognise an issue and take proactive steps to remedy it:

Kevin: "There was one of my managers that I thought I got on with and then I got my end of placement feedback and got a little bit slammed in it...it stuck with me a little bit... so I sort of made a conscious effort to get my managers to tell me what I needed to do to improve and

get regular meetings with them and just pester them for feedback early in my placement so I could bring it up a bit and make changes". [Interview 3]

For Mark, an explanation of where the constraints of machinery must be factored into design would not suffice to enable the ability to fulfil his tasks adequately. He also required an understanding of what these constraints were. Only once the impact of Mark's inexperience was recognised by his colleagues did he feel he was able to gain access to the training he had required from the start of his placement. But his community, controlled access to these resources and set the agenda of his training, and Mark was initially too inexperienced to recognise where he needed help. Upon gaining access to opportunities to observe his colleagues engaging in the pursuit of their joint endeavour Mark's understanding of what it meant to be a design engineer expanded. But this negative experience of feeling as though he had not met his colleagues' expectations had a detrimental effect of his developing identity as a professional engineer. As a student who one day hoped to progress in a career in engineering, he was accountable to his community's regime of competence. Recognising his claims to competence had been initially unsuccessful, he became insecure in his abilities. He made frequent reference to the fact that he felt wasn't good enough.

Mark: "Erm towards the end of it I think I was doing alright, the first six months I think were a bit tricky and I don't think I was doing much and I don't think they were too happy with my progress really...Just 'cause I knew I knew in myself that I wasn't doing much work none of the stuff I was doing was being made and going out the door so I knew I wasn't really contributing much but the last sort of 6-8 months were good and I felt like I was contributing more and was more part of the team I suppose". [Interview 4]

Mark suggested that he began to feel more comfortable as his competence developed. The way he viewed his own abilities and his perception of how his colleagues perceived his abilities to contribute, had a significant impact upon his ability to negotiate an identity of competence. In addition to feeling ill-prepared for work, unable to make significant contributions and consequently feeling as though he didn't fit in, Mark admitted throughout his placement he never felt like an engineer. How students felt about their existing knowledge and how they perceived their colleagues to view their capabilities appeared to be a prevalent influence on their ability to integrate knowledge and negotiate identity across the data, this in turn had consequences for the way students participated and thus learned on placement.

In Antoni's narrative for instance, his first task on his placement was described as being one which he believed he could have easily done in minutes, using the knowledge he had developed on his course, and yet he had spent days on it because the pressures he felt from his colleagues' potential perceptions of him made him doubt his own abilities:

Antoni: "it's just sort of like uncertainty ... if I screw up as well they will look at me a different, pressure erm that's the sort of pressure I felt for most of placement maybe I was sort of relaxed last four months". [Interview 11]

If learning involve,s as Lave and Wenger (1991, p7) suggest, gaining increased access to "participating roles in expert performances" through the process of legitimate peripheral participation then a hesitance to perform simple tasks in a prompt fashion, must ultimately have delayed Antoni's ability to progress toward the more complex activities, which would allow him to reach his full potential. Though Antoni's approach to applying his knowledge from university to his first task had been tentative, he eventually decided to ask for feedback in a bid to build his self-efficacy.

Antoni: "it was well probably was my whole point to know what they think about me what am I doing there is like erm, you can sit like scared in the corner and hope you do it right or go and ask erm so yeah I got pretty good feedback about that...". [Interview 11]

Regina in contrast despite recognising that there was much she didn't know on her placement felt reassured immediately that her employers were aware of what she might not know as a placement student:

Regina: "They were expecting that all of the interns come unprepared for the job so they weren't that tough I never felt any pressure on me to do something I was lucky enough to have no deadlines I could work at my own pace. I mean I had deadlines but they weren't very rigid if for example it took me two days longer to finish something no one would tell me anything or be angry at me for that erm so yeah I mean erm it involved a lot of adaptability to different situations and scenarios that I was completely unfamiliar with but erm that was just part of the job to face all of the challenges that were coming to you. [Interview 6]

Regina indicated that she believed her employers were aware of her limited understanding as a placement student and was thus given the space she required to accomplish tasks at her own pace. From gaining the freedom to self-manage in this way, Regina expressed that she had to develop the skills of resilience and adaptability. Skills highlighted in the literature review as being highly valued by workplace employers. Regina felt her colleagues made it clear that any limits to her capabilities were understood to be an inevitability associated with being early on in her career as opposed to it being a consequence of personal failings and in the course of doing so helped motivate her to progress:

Regina: "I was surrounded by incredibly smart people and I felt that I'm way behind them but then I erm I've spoken this with my manager and he told me you're just an intern you have still your undergraduate degree to finish don't worry you're not supposed to know as much as they know they have probably more than 8 or 9 years of experience in the industry and probably have a PhD and a masters so stop comparing yourself to the kind of knowledge they have, but that motivated me to be the best that I could be". [Interview 6]

As was evident in his narrative, Sam felt that on his placement, his colleagues made clear where they appreciated the value of his past practical expertise and his ability to draw upon it in the workplace.

While participating in legitimate work tasks alongside his colleagues, Sam described being able to recognise where elements of his past-experience of practical engineering could be adapted and applied in the context of fitting car equipment in his role as a support engineer.

Sam: "Erm you could see that 'cause I had to work on cars as well, fit various equipment, and it really showed through there erm you know not afraid to get stuck in, you could see some of the people some top level engineers and they couldn't even tell if the battery was flat or not, the car wouldn't start and they're changing all the calibration and I'm just like no it just needs a new battery... they'd be like oh could you come and just fit this for me, a lot of the time".
[Interview 10]

Bullock et al (2012) suggest that on placement the power distance between expert and novice is diminished, students are able to contribute their own knowledge and on occasions can even assume the role of expert. In Sam's example, in the course of fitting car equipment he had felt able to use his experience to assess issues and subsequently amend them. The recognition and acknowledgements from his colleagues who often turned to him for help, demonstrated to Sam the appropriateness of his actions and the value of his pre-existing practical experience for application in this work context. The clear demonstrations that Sam's integration of practice was appropriate and valued has important implications for his self-efficacy as it enabled him to feel he could offer worthwhile contributions to practice even in areas where other, more established colleagues could not, contributing to an identity of competence. Where, in addition, an employee believes their actions have led to success in the past, they are more likely to perform similar actions in the future (Lunenberg, 2011), hence Sam's confidence and willingness to help his colleagues and fellow placement students with practical matters throughout the year.

Lave and Wenger (1991) explain learning in practice to be a matter of acculturation, an essential aspect of this socialisation into practice is the potential to make authentic contributions to communal enterprise (Cope, Cuthbertson and Stoddart, 2000). Martin, like Sam, had also gained practical experience prior to attending higher education, and in his case this experience stemmed from years of warehouse work and personal hobbies. Martin felt confident in his practical abilities and believed that his practical expertise was recognised by his colleagues. Resultantly he suggested he had felt comfortable in requesting that his colleagues adjust standard procedure in order to enable him to incorporate this experience into his role, something his team were willing to do:

Martin: "actually having worked through maintenance and done a lot of practical work on cars and stuff like that and they I think they realised that I actually could just do stuff basically... I think they kind of adapted to suit so I was doing the statistical process control and most I think the default model is you tell someone from production measure all these things give me the results and I'll do the analysis and I would say I'll do the measuring so I know it's done right

and they were perfectly happy for me to do that because it is good practice to have the same person do the measurements every time". [Interview 7]

A further influence on the way students approached incorporating their existing knowledge into their placement was the way in which they perceived these opportunities for integration to be managed by those around them. Martin for instance did describe an instance where he had struggled to apply his past experience in the form of report writing to the task of writing an industry report. But his perception of the way this issue was managed by his colleagues meant he felt able to quickly move beyond this issue and continue in his progression:

*Martin: "the first two months I'd written my first report and probably I wrote it more as an academic university report and it was very heavy on science lots of information that it didn't really need and again Richard said it's a brilliant report but you get rid of this, this, this, this, this and still say the same thing ... I actually went on a 3 day course with *placement company name* on how to write reports". [Interview 7]*

Despite initially approaching his report in the 'wrong' way Martin felt supported through consistent guidance and effective training to successfully learn how this skill should be adapted to align with the expectations of his company, and as such he adapted his approach accordingly. Like Martin, Robert also had to learn to adapt the format for writing reports from that which he had used at university, but for Robert this process had been frustrating.

Robert: "I found with writing things you would write in a way for 6 months and they'd go yeah that's fine and then it was always no I'd do it this way so then you'd have to redo your work because he wasn't happy with how you wrote it even though it's the same point and I found that a bit infuriating at times because it's the same thing...I did find myself sometimes going I'll just wait until you leave the office in 5 minutes and then I'll get somebody and they'll stamp it and it will just get done 'cause otherwise it's going to take me 30 minutes to rewrite it". [Interview 9]

The perceived contradiction amongst his colleagues as to what was and was not an acceptable way to write an industry report, led Robert to feel frustrated, which had implications for the way he then chose to act upon the situation. In the negotiation of a joint enterprise, relations of mutual accountability are formed between those involved, and included in this are notions of what matters and what does not, what is important and why and when actions and artefacts are good enough or where they need improvement. But because mutual engagement does not require homogeneity, a joint enterprise does not equate to agreement. Not every member will agree on everything, but they will instead form an enterprise that is communally negotiated (Wenger, 1998). A perceived disagreement amongst his colleagues as to what is deemed acceptable practice meant that Robert felt unable to identify a universally acceptable format for report writing within his workplace. However, "even failing to learn what is expected in a given situation usually involves learning something else instead" (Wenger, 1998 p.8). Feeling unable to learn the way to write the report in the manner his

superior expected Robert found a way to compensate for this lack of understanding by identifying alternative colleagues to whom he could go and have his work signed off, in its existing format. This in itself was an important lesson. Learning in practice requires of communities evolving forms of mutual engagement. Its members must continually work toward discovering how to engage, and what helps and hinders this engagement, they must establish who is who amongst their colleagues including who is good at what, who knows what, who is easy or difficult to work with and so on (Wenger, 1998). As it was a requirement to have his work signed off, an inability to meet the changing expectations of his superior could have hindered Robert's ability to continue in contributing to his practice, but by recognising this relationship as being problematic and identifying where others were more amenable to his report formatting he felt able to negotiate a response to the situation which would enable him to obtain approval and thus continue to contribute to his community and continue in developing an identity of participation.

Though in many instances, students described feeling able to use their past experiences to good effect whilst on placement, this was not an inevitability as was demonstrated by Robert who attempted to translate a workflow he developed as an electrician in an attempt to participate in his new workplace only to come to the realisation that it was hindering his progress:

Robert: "I originally found when I started I was trying to get to I went through a mentality and it was quantity it was just quantity you know really stuck on time, it was you need to get a hundred lights up so you can only spend so long above the ceiling getting the wiring neat, so it's really - so this was a completely different thing. So I did where I was still getting making silly little mistakes where I was rushing things through, the other guys were given more interesting tasks and then it was like right and then it was like a light had flicked on and I was like right I'm going to just stop slow down so I developed a method like a checklist for myself and then once they'd see that like yeah he's got over that I was then given more interesting things to do". [Interview 9]

Peripherality offers an approximation of full participation, in this instance Robert believed he and his placement peers in their status as new members of the workplace were given tasks which required less responsibility. In order to gain access to greater levels of responsibility Robert recognised that it was necessary to first demonstrate competence in the simpler tasks he had been assigned. In attempting to complete his tasks Robert initially clung to an approach he had developed through his other experiences of work. In his role as an electrician an ability to work with haste had been necessary, but in his role as an engineer, this was hindering his progress. The speed with which he worked was causing him to make mistakes which he came to think was causing him to be unable to progress to more advanced tasks.

By gaining opportunities to watch his peers being offered more desirable tasks in response to working carefully and meticulously Robert was able to witness desired practice in action and adjust his own workflow accordingly. Wenger (1998) explained that a community of practice offers role models for negotiating trajectories. Exposure to these paradigmatic trajectories is suggested to be the most influential factor in shaping the learning of new members. As members participate in practice, they create a set of possibilities to which newcomers are exposed as they in turn negotiate their own trajectories and learn what counts in the community. In this instance, the potential to adopt a trajectory of increasing participation was modelled for Robert not by his more established colleagues but by his placement peers who were successfully working toward increased responsibility. The perception that development required a display of competence, in addition to opportunities to witness the quick progression of his peers, facilitated Robert to self-assess and recognise where his past workflow was inappropriate in his new context and detrimental to his own progression.

Mathew suggested that during his experience of working on placement, his colleagues, in refusing to coddle him in his learning, indirectly encouraged him to translate his skills of self-discipline developed through education, into the context of the workplace.

Mathew: "You don't get someone who says you need to do this and do this and on your graph you need this, this and this you're just expected to do it yourself... I think that's the purpose sometimes someone could spoon feed you and say you need to do this this and this but I guess part of engineering I know from going out into industry no one sits and goes through and says you need to do this and you need to do this it's very much this is what needs doing get it done and you have to work out how you're going to get there". [Interview 7]

Mathew came to believe from his interactions with his colleagues that the autonomy instilled in students through independent learning holds value for success in the engineering workplace where he perceived there to be constraints on time and resources that must limit the availability of guidance and supervision. Tom similarly formed links between the time management skills he felt had developed at university and ability to work to deadlines whilst on placement.

*Tom: "My time management has definitely improved through uni because my A levels were a bit of a disaster prior to that so I was able to use that... obviously you're erm given a lot longer deadlines at uni because you have all your learning and lectures to do alongside all your work, whereas at work it was we need this for then, like get it done basically there weren't much room for error erm or to be late because of the industry it was for they're quite a demanding industry *Client name*". [Interview 2]*

Tom's experience of working with real clients enabled him to develop an understanding of the differences that can exist between university deadlines and those set out in industry, and his own capabilities in relation to these demands. Coll et al (2009) in a study of the three key placement stakeholders found employers across a range of subjects to value time management amongst other

soft skills as being those they were most interested in seeing in placement students. It was a skill that was deemed important in academia, but critically important in the workplace. Despite Tom noting workplace deadlines to be much stricter and more frequent than those he was accustomed to at university, he felt able to meet them in large part because of the support of his superior who he believed assisted in ensuring he and his colleagues had the help they required in order to complete their jobs on time.

Tom: "Yeah generally Ross was quite good at knowing how long it would take us, so he'd put two of us on it if required or he'd help himself if needed it was, I wouldn't ever say that it was, there was no impossible deadlines but they were certainly a lot tighter than I was used to".
[Interview 2]

Mutual engagement such as that required in meeting office deadlines involves not only the competence of a single community member but also that of those around them, it requires a person to develop an awareness of their own knowledge and capabilities, as well as an understanding of what that means in relation to the contribution and knowledge of others. Mutuality is always partial, but this partiality can serve as a resource. Though Tom had experience in managing his time in relation to university projects, his ability to translate this skill to placement would perhaps be limited given that the project deadlines were stricter, and projects at times involved the collaboration and coordination of multiple people. Within a community of practice however different members make diverse contributions to activity, and in this case, though Tom felt it had been important to monitor his own time management, he felt confident to do so in part because Ross, his senior engineer, had assisted in ensuring there were enough people working on a task at any given time.

Upon returning to university, some students felt able to draw upon generic skills developed whilst on placement including the ability to plan, prioritise and adapt:

Laura: "Being on a placement and returning has had a huge impact on the way I tackle work this year, because on placement, I was sometimes faced with very overwhelming workloads and had no choice but to prioritise the work and in most cases, prioritise the users who needed the help (profs always came first priority for assistance). Having learnt how to get down a workload by effectively planning through prioritising is turning out to be a very helpful skill I picked up that is helping me in Final Year". [Facebook group]

As evidenced in many of the narratives, upon completing their placements many students had a renewed enthusiasm to do well in their studies. For some students this manifested in an improved attitude and approach to academia.

Regina: "After my placement I've become even more motivated to take opportunities because I was lucky to have a housemate ... she was incredibly motivated I've never seen anybody like her she just made me feel like oh my god I'm not doing enough for my personal development

for myself and she always seemed like she's doing so many networking events erm going to conferences, scholarships she has an incredible C.V and experience and she's only 22 and erm I just felt so motivated by her that it really, she had a big influence on me that's why now I seize every opportunity I look for all sorts of conferences I can apply to...". [Interview 6]

Tom: "We haven't had much to do we've just been in lectures we haven't been given much work to do, but I'm finding that I'm spending a lot more of my free time between lectures actually doing work rather than dossing around which is what the first and second year was all about...Yeah it was kind of a productivity thing, it definitely increased me wanting to do it instead of kind of saying yeah it will be done, it will be there it'll be ready when it needs to be but now I'm kind of like well I've got it lets start it even if I don't get it finished". [Interview 2]

Auburn (2007) identified in a discourse analysis of psychology students' post-placement return to university, a repertoire of "two realms". The workplace and academia were positioned as two distinct realms where the experiences in one did not easily transfer to the other. Similarly, in a study of accountancy students Anderson and Novakovic (2017) suggested their sample spoke of the 'shock' and challenge of returning to university from their work placement, attributing their difficulties in part to systemic and circumstantial factors including course structure. In the present study few references were made to the challenging nature of the return to university. Those that did refer to the experience in such a manner typically concentrated on issues of routine, discussing where workflow on a course largely based upon independent study clashed with the more regimented schedule of the workplace to which they had grown accustomed. Some students had come to view their approach to working on placement to have been effective and had sought to translate this to their studies, hoping to continue with a 9-5 mindset. But they felt that the structure of their course had not facilitated them to do so.

Mathew: "I should start doing more work between lectures again the other thing is we've just started back at uni there's nothing I can do so maybe hopefully well I feel like now I'm going to adjust back to uni life in first year and then in 5 weeks-time when I've got loads of work to do I'll have gone back to uni life if I could have had work to do right now I'd be doing something.....its suddenly dropped to I have like it felt I had a on Monday I had like a 2 hour break and I just sat around talking to friends but if I had something to do I probably would have done it". [Interview 8]

Kareem: "Immediately coming back off my placement I did feel I was more organised and a bit more mature but some of that, some of the organisation has slipped away since but I think that's just due to being back at uni for over a year now and it's just kind of got back into that slacking routine really". [Interview 12]

Whilst certain students felt the structure of their course to have hindered their ability to continue what they believed to be good work practice, Regina who suggested she had felt more enthusiastic toward professional development following placement, had also indicated she too had faced barriers within the university that had the potential to limit her ability to act upon this change in attitude

Regina: "They [conferences] could be a bit, they could be better advertised as part of uni... especially this year there haven't been many events or things that I could get involved in, especially to develop myself or to put on my CV". [Interview 6]

As was evident in Regina's narrative however, despite a perceived lack of opportunities for professional development within the university, Regina was able to use her connections and research skills to source further development opportunities external to her university post-placement. Evidently practices within the academic setting are not the sole determinants as to whether or not a student is enabled to continue their development of successful practice following their placement opportunity. However, one could also argue based upon Regina's narrative that sourcing professional development opportunities was something that she had been given a lot of assistance with in her earlier years of study, which might have contributed to her ability to continue to do so post-placement, in a way that had not occurred to others. One might argue therefore that students may benefit from more guidance and formal opportunities to facilitate them in carrying forward the enthusiasm, drive and work ethic they develop whilst on placement.

Eames and Bell (2005) found students to believe they had learned more from their placement when they felt it was well integrated with their course. They argue that to justify the relevance of work placements as learning opportunities within a wider degree course, the students participating in a placement must be able to identify the relevance of their placement to their studies. Given that the learning opportunities a student is afforded will be dictated by the nature of the workplace in which they are placed, they suggest it is integral that a student's placement is as well matched to their studies as possible, but where this is not possible they suggest there is an obligation on the part of the coordinator or other facilitator of student learning to assist students in forming links between their learning in the classroom and on placement. Coll et al (2009) in their investigation into pedagogies employed to integrate knowledge between the workplace and academic context found no consistent mechanism by which knowledge integration was facilitated by placement coordinators, mentors or supervisors. In the current study, few formal attempts at post-placement knowledge integration were discussed by students. One of the practices formally intended to facilitate knowledge integration that students mentioned experiencing was the completion of placement-based assignments. One assignment required students to research their company, another required them to produce a reflective journal throughout their placement year. Perceptions of the value of these requirements were mixed.

Kevin: "So one of them was a company report so you had to do a lot of research about the company and what it did and all that kind of stuff and erm I wasn't too sure that that one had actually taught me anything because it was all information that I kind of knew already so I was just kind of typing it in my mind for the sake of typing it up. But the second one was quite good

because it was like a learning diary so you kind of, everything that you'd done on placement you wrote down and erm sort of reflected on what you'd learned from it and what you'd do differently so that one was definitely worth doing... you were supposed to do it as you go along but I know I wasn't the only one who left it until a good few months into the placement before I actually started it and was like 'oh hang on I better make a start on that one now'". [Interview 3]

Mark: "I think it helped me to learn about the company erm and to be honest it did come in helpful it came in handy the other one about what I'd actually done because then since whenever I've gone to an interview especially immediately after university when I was looking for a job and I had to prove that I had previous experience in work I'd take that document and show them and this is what I did". [Interview 4]

Brad: "The report requirements - I've got to keep a diary and write two reports over the course of the year and I don't think they're particularly engaging - I'd rather be doing something more practical to demonstrate the technical skills I've learned perhaps?" [Facebook]

Few students discussed their placement related assignments. Yet Jackson (2016) suggests that opportunities to reflect upon placement activities are critical for students to question and make sense of what they experienced and learned. Though both Mark and Kevin found value in their reflective journal, for Mark its value lay in its use as a form of proof to refer to in interviews as opposed to a facilitative pedagogical device, while Kevin found it useful but did not begin formally reflecting on his experience until months after his placement had begun. Despite a body of literature which suggests reflection is an integral element of the learning process, students gave little indication that they recognised the implications of their reflective journals for facilitating their learning.

Despite the presence of organised attempts to facilitate students to integrate their placement learning into their studies, more often students made reference to their final year project as an effective means of incorporating placement learning into the academic context. Thompson (2017) suggests more could be done to enable students to continue the positive experiential learning they gain on placement upon returning to their final year(s) of study, suggesting the undertaking of a research project based on the placement experience would provide "clear and strong applied and pragmatic strands right through undergraduates' academic careers, whilst other modules present theoretical underpinnings" (p.423). The statements of the students in the current study would suggest there was a shared perception that the final year project offered a rich opportunity for carrying forward that which they had learned on placement.

Mark: "My dissertation I did like a load of manufacturing drawings and stuff and without my placement year I'd never have been able to produce them so yeah my placement was really helpful for my last year". [Interview 4]

Tom: "It was a lot of stuff to learn by the end of the year I didn't think I'd learned that much but now I'm going on to my final project based on the company and I realised that I picked up a lot". [Interview 2]

Antoni: "One of those things was erm I wanted to get myself a final year project because I knew that if I in university there's going to be lots of problems so better if I would find my topic so I can get familiarised with it so that was one of the things I was sort of looking around asking people what I can do for my final year projects so I could have a few ideas...they gave me a job to erm one of the biggest customers complained that the device was too noisy... I took that whole problem as a university project just to go in deeper as I found grease was the causes of the noise and what caused vibration and going quite deep into so erm yeah I got the best project award for all engineering students". [Interview 11]

For some the work placement year had provided a chance to build a level of familiarity with an area of practice from which they could identify opportunities to produce a novel research project. In some instances, this process of identification was facilitated through the seeking of advice from colleagues already established within the industry. For those who chose to base their dissertation on a concept linked to their placement, the final year project provided an exercise in reflection that allowed them to recognise the extent of their learning and to identify where aspects of their situated experience could be incorporated into the process of conducting an independent academic project, forging links between theory and practice in an extensive piece of work worth a significant percentage of their final year grade. Whilst some perceived their applicable knowledge and skills to relate to theoretical, technical and practical understanding, others identified improvements in skills such as organisation which contributed to their ability to complete their project in a different but nonetheless important way.

Interestingly a limited number of students also mentioned participation in the 'Industry of Mechanical Engineers' challenges to have formed part of their final year project, this too was an area where learning from placement was perceived to have informed and improved their performance.

Robert: "Obviously with the drone and how we're going to make something I've got a better idea and thinking how long things take and what you have to do, what things work in particular". [Interview 9]

Kareem: "I can see the skills on placement you can use at university and I think that's probably the most helpful thing currently I'm doing Formula Student which is the group project to build a single seat race car and some of the skills I learned on placement come across quite well for that and its quite handy to kind of have that background because everybody on the team kind of did a different placement and had different experiences so bringing your experiences together can be quite good I think". [Interview 12]

The tasks to which the two students refer include 'The Unmanned Ariel System (UAS) Challenge' - a project requiring students to undertake the designing and building of a UAS with 'specific mission objectives' and 'Formula Student' requiring students to produce a race car prototype which they must

ultimately present to a hypothetical manufacturing firm. Both year-long projects require students to work together as a team. In describing the Formula Student challenge, the industry of mechanical engineers (ImechE, 2018) assert “it provides an ideal opportunity for the students to test, demonstrate and improve their capabilities to deliver a complex and integrated product” and suggest that participation in the project affords the opportunity to demonstrate technical, engineering design and manufacturing skills, and will teach students about “team working, time management, project management, budgeting and presentation”. In these instances, reflection was therefore facilitated through practice, as opposed to more traditional academic means.

Kareem’s reflection suggested that this project offered a valuable opportunity to work with his peers, each of which he recognised had something different to contribute from their learning on placement. To utilise placement learning in the manner suggested would require a sophisticated ability to reflect upon the placement experience and identify where aspects of it were applicable to the task, and then disseminate and combine this knowledge with that of his team-mates through the partiality of mutual engagement, and to then apply this shared knowledge in practice. Given Thompson’s (2017) suggestion that more could be done to enable students to continue the experiential learning gained on placement upon entering their final year and Jackson’s (2016) assertion that it is essential students gain opportunities to reflect upon their placement learning in order to make sense of it, perhaps further research could be dedicated to exploring the proficiency with which challenges such as these enable reflection and knowledge integration in this manner. Anderson and Novakovic (2017) suggest that if work placements are to be theorised as being integral to the educational experience then one could argue that the educational environment should be focused on reinforcing the newfound skills students develop whilst on placement. Kareem and Robert’s reflections seem to suggest that participation in these challenges allowed them to continue to build upon their practical placement learning in tandem with their more theoretical academic studies.

Upon returning to their studies many students recognised where elements of their learning from placement related to their course content, providing them with a foundation of knowledge in what would otherwise have been unfamiliar territory:

Martin: “We didn't do anything on statistical process control until fourth year, so I knew more about that when I came back than I did before I went”. [Interview 7]

Liam: “The majority of the stuff I did, now I'm walking through a module now thinking yep I did that, did that, did that so the module I'm doing in my final year would have been better in my second year to be fair”. [Facebook]

Phil: "Yeah, I mean I certainly, again the, having developed the language some of the coding languages that I was using that that I found helpful that was useful in my final year". [Interview 1]

For others, relations between the placement experience and learning at university existed in the form of a contextualised understanding to which they could refer when approaching assignments and in learning from the course more generally:

Mathew: "Yeah I was thinking when like some of my assignments and things like I'm thinking about them differently now and thinking like how do I make it real life rather than just fitting what is on a sheet of paper that is a theoretical thing... it's not even so much just the engineering knowledge it's how, how does a company work how does finance work, where does the money come from what do you actually have to worry about erm it helps a lot". [Interview 8]

Jackson: "you can feel like you're smarter after placement not really because you're smarter but when you come back to final year the things they teach you, you can relate to them from a practical perspective ok this is this and that's that so very much worth it". [Facebook]

Participation in communities of practice can be a transformative process, as forms of participation change so do perspectives and life can consequently be experienced in new and different ways. After participating in a work placement, becoming immersed in the practices of their prospective industry Mathew and Jackson felt they were able to relate to their course more critically. In his assignments Mathew not only formed connections between his theoretical understanding and practical experiences but also incorporated considerations of ancillary issues such as financing, not only suggesting a more thoughtful, pragmatic approach to his studies but also indicating the development of a newfound awareness of the bigger picture of what it means to be an engineer which he was able to translate into his degree studies.

Though it was evident that many students felt able to form links between that which they had learned on placement and their academic studies, students also suggested that in some respects placement offered a unique opportunity to learn about their field in a manner that could not be developed through academic study.

For some students, the work placement year offered their first insight into a workplace:

Kareem: "it was my first proper job so it was a chance to sort of learn how to work in an office environment and work in professional teams that kind of thing working with customers it's the sort of thing I wanted to learn about working in engineering that you wouldn't get in university". [Interview 12]

Kareem: "Even in the way you conduct yourself in emails or phone calls was something I picked up on placement which is something you don't really learn at uni everything's kind of informal other than the reports you're writing". [Interview 12]

Mark: "Even like answering phones and stuff that sort of side of it is just weird when you've not had a job before I remember I used to dread the phone ringing like oh no someone else answer it". [Interview 4]

Upon spending a year in industry students were able to learn more about the subtleties of the workplace and in particular reported a burgeoning familiarity with the social elements of professional practice. In addition to gaining experience of working in a professional team, and learning professional etiquette for phone and email contact, students also reported gaining experience with client interactions:

Mark: "I think talking to clients and stuff that was pretty useful because I'd never had any experience of that erm just the real-world stuff that you don't do at university like sourcing products and talking to suppliers and clients and just that side of it" [Interview 4]

Martin: "We do cover how to do presentations we do lots of presentations on your course but customer interaction is not dealt with at all as part of your engineering degree you learn a bit about customers and a bit about sales but it's, it's only just touched on you don't really I would have never known that I liked it as much as I did if I hadn't have done a placement and I really do love it". [Interview 7]

Like Martin, Mathew felt that whilst presentations were a part of the undergraduate course curriculum, the authentic nature of delivering presentations within the workplace was significantly different:

*Mathew: "Well yeah you do presentations to your lecturer and to a huge group of people, but I don't think anyone can prepare you for presenting to the second in line at *placement company* that can tell you never to come back to *placement company* again ... University couldn't prepare you to present to someone that important or that high up because you're always presenting something weird or obscure at university". [Interview 8]*

Eames and Bell (2005) suggest that students on placement may experience some aspects of learning as being entirely new and not easily related to their academic studies and yet this learning may significantly contribute to how students come to understand what it means to work in their industry within the particular community of practice of which they gained membership. This learning they argue might complement academic learning as opposed to integrating with it resulting in a broader education than can be fostered through academic studies alone. Through their experiences on placement these students suggested they gained situated learning opportunities that could not be replicated in an academic context. Though these experiences were perceived as being entirely separate to their course content the students did not suggest this had been detrimental to their learning. Participant's in the present study, likewise, identified where aspects of placement learning could not be replicated in academia as a consequence of the authentic, contextualised nature of certain workplace practices. Opportunities to gain authentic industry experiences were thus highly

valued and enabled students to build upon an identity of professionalism in a way that their degree alone would not allow.

Theme One Summary

This theme has evidenced where learning on placement is supported by prior university learning, and where learning in academia is in turn, subsequently enabled by learning from placement. Participation in each community of practice forms a relative contribution to the development of professional competence.

Students' perceptions of their existing knowledge and their self-efficacy to translate this knowledge into practice was demonstrated to be influential to their willingness and ability to apply prior learning in the context of placement. This was demonstrated to be influenced in part by their perceptions of how their colleagues view their capabilities and support their integration attempts. Experiences of integration were suggested to contribute to an identity of competence which was demonstrated to have consequences for the way students participate, and thus learn from the placement experience.

To integrate academic knowledge in the context of placement was additionally shown to require an ability to identify where the skills and knowledge developed through past experience are appropriate to the new workplace community of practice, where they must be adapted or where entirely new knowledge must be generated. To do so requires self-assessment and a responsiveness to social and contextual cues on the behalf on the student, and guidance and feedback (implicit or explicit) on the part of their colleagues.

The experience of placement enables students to recognise where their pre-placement course content relates to industry and forms a valuable contribution to their professional development. The contextualisation of academic knowledge was demonstrated to then continue for students in their final year as they associate new knowledge with their experiences of practice through a process of reflection. The realisation of the value of academic course content in addition to an ability to better understand it from an experiential standpoint was shown to contribute to a transformation in thinking, which in tandem with an emerging sense of professional competence, manifests as increased motivation and improved engagement in the final year(s) of study.

Theme two – Incorporation and Identity

Theme two explores students' lived experiences of incorporation into their work placement community. Of focus in this theme are the ways in which students' identities and learning trajectories shift as they attempt to progress throughout the year from their initial positions as peripheral community members toward more central participation, demonstrating where issues of membership, learning and identity are intertwined on placement. This focus on identity reflects the third aim of the study:

3. To analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.

The formation of identity involves an ongoing process of meaning making, thus the meanings students form in relation to their incorporation experiences are of focus as are the practices and factors students identify as being influential to the process of incorporation, thus addressing aims two and four:

2. To explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.
4. To explore the emergent practices which serve to enable or disable learning on placement.

As with theme one, the interpretations of theme two are informed by sociocultural theory, addressing the first study aim:

1. To apply a sociocultural theoretical framework to the understanding of placement learning, whilst contributing new theory driven knowledge to the work placement literature.

Wenger (1998) suggests that inseparable from issues of practice and community are issues of identity. To build an identity requires the negotiation of meaning from experiences of membership in social communities. In everyday life, Wenger argues, discerning where the sphere of the individual ends and the sphere of the collective begins is difficult, because each experience of participation and reification reflects a mutual constitution between the individual and the collective: practices, language, artefacts and world views each reflect a person's social relations, as do even private thoughts which draw upon concepts, images and perspectives that are understood only through participation in social communities. As such, there exists a profound connection between an individual's identity and social practice. In any given community of practice, an individual must negotiate ways of being within that particular context and part of this negotiation involves the ways in which the individual relates to and engages in action with other members. In practice an individual gains experience of participation, and they are reified as participants based upon what their community pays attention to during this participation. Taking for example Phil's narrative, it can be seen that Phil had to find a place for himself within an organisation that didn't offer the work he expected, that required an adherence to rules he found pedantic, and that valued a form of professionalism that he felt he did not imbue. Over the

course of the year Phil was able to negotiate a place for himself from which he felt able to form valued contributions without conforming with practice that went against his own values. This was a challenging negotiation, fraught with tension and conflicts and ultimately, this position that he carved out for himself worked because he showed technical competence, and because of the shared understanding between himself and his employers that his employment would remain a temporary arrangement. Phil was viewed as capable, but an unsuitable fit for the company. This of course had implications for his identity, by further cementing his perception that his 'variable' personality was not suited to the professional environment. Identity in practice, is a way of being in the world, who a person is, is captured in the way they live day to day it is not solely a representation of what they think of themselves, or how they are defined by others. It is a social phenomenon not only as a consequence of social categories but also because it is produced in the lived experience of participation in the world. What categories, roles and positions come to mean to an individual is something that is negotiated in practice. Identity is a complex interweaving of layers of participative experiences and reificative projections (Wenger, 1998), by bringing the two together in the negotiation of meaning a person can construct who they are, and so identity involves the constant work of negotiating the self, and it is constantly renegotiated throughout the life course. As a person participates in a succession of communities of practice, their identities form trajectories both within and across these communities. As a trajectory, a person's identity incorporates both the past and the future in the in the process of participation in the present, and this sense of trajectory provides a context from which to determine what amongst all that there is to be learned, will actually become significant learning, and helps a person to determine what is and is not important, and what should and should not contribute to their identity (Wenger, 1998). In the early days of placement, the students' professional trajectories were in an early phase of formation. When first embarking upon their placement journey, many suggested they had little idea as to what they should expect.

*Mathew: "You don't know what to expect, you just, how do you prepare to walk into *placement company name* and be building cars"? [Interview 8]*

Kevin: "I didn't really know what to expect, erm so like...yeah I just wanted to really see what a graduate engineer would actually do 'cause sort of blindly going it to like 'I'm interested in how things work so engineering's a good route for me', I'm good at maths and physics and stuff so like I just applied for UCAS and chose engineering and erm still didn't really understand what you actually did when you graduated". [Interview 3]

Typically, the first insight students gained into their new community came by way of an induction period, particularly for those suggesting they had worked for larger organisations:

Kareem: "We're all sort of inducted together erm and a quick briefing of the company and department we'd be working in and then it sort of broke off into each department and erm it's all just an introduction we went through a few PowerPoints of this is what this department does and here's the area you'll be working in and then sort of a tour of the facilities, the office, the workshop and that kind of stuff". [Interview 12]

For the majority of the students indicating that they had received a formal induction to the company, the experience was spoken of positively. Many suggested it had been a useful opportunity for becoming better acquainted with their department, company and colleagues. Both Smith (2012) and Freestone, Williams, Thompson and Trembath (2007) highlight the importance of preparing students for their year in industry with Freestone et al suggesting students must be continually and realistically

prepared for the type and range of work they will do whilst on placement. Coll et al (2009) additionally identified the induction period as an opportunity for students to view their company in a more holistic fashion, and to develop what Haigh (2008) termed public general knowledge; knowledge which already exists, is widely known and available to everyone.

The organisation of an intensive induction schedule however, though generally perceived as helpful, for some was viewed as insufficient on its own as a method by which to build the foundation of knowledge required to begin settling into the new workplace:

Mathew: "The Tuesday I met the manager I could not find where I was supposed to meet them ... then the first day it was here's your laptop here's the book ... so there was a lot of that which was quite good but again not even anyone showing like right this is the canteen, this is where you get food, no one does that... Yeah there was a lot of wandering around looking very lost erm scratching heads because there's no signs there's no nothing... It made me feel like no one really knew what was going on". [Interview 8]

Kevin: "The first week of my placement was really overwhelming! I got there on day 1 and was bombarded with information from HR, Health and Safety, and the head of engineering... On day 2 i went to a lot of team meetings where i had literally no idea what was going on... towards the end of the day, i finally asked what loads of the stuff meant and the team did their best to try and explain it to me". [Facebook]

Though for the majority, periods of induction were well received as a means to gain an initial insight into the company, for a select few they were a source of confusion and even frustration, partly as a consequence of a perceived overload of information and partly as a consequence of sharing too little. It would seem in these instances the students desired opportunities to gain clarity, particularly in Kevin's case where the chance to ask questions of his colleagues more directly, had enabled him to begin to better understand the induction information that had been previously only been shared en masse.

As explained in his narrative, Kevin's placement was made up of four rotations. Though in his first weeks of his initial rotation his induction left him feeling confused, in his final rotation, his team took steps to ensure he could gain a better understanding from an early point and this ensured that they too better understood his abilities right from the start of his final placement:

Kevin: "my last department basically in my first two or three days there they asked me to do an entire presentation on my placement to date and everything I'd done and what I was interested in so it sort of let them get a bit of an overview to me and then they kind of had a kind of counter presentation of similar things for their department and it got me kind of settled into things a lot better I think...just being able to see what it is they actually do like my first week of the company I was going to all these meetings to try and get my head around it and you'd be sat and they'd be talking for two hours and you'd come out even more confused than when you went in, but with my last one because they'd set out exactly what they were doing

and what the different projects were you could sort ahh right so this bit that he's talking about here is for that component and things like that and so I think it might have been because I was more settled into the company as well but just having that was definitely an advantage". [Interview 3]

By offering a more specific overview of their team which was directly applicable to Kevin's experience as opposed to a group of placement students as a cohort, Kevin's final placement team were able to better able to explain and contextualise his work and role and how it related to the work of his colleagues. From a Vygotskian perspective, this introduction would additionally offer his team a better understanding of Kevin's experience to date from which they could begin to discern his current capabilities and thus identify where his potential lay for future learning. Similarly Martin also suggested when he joined his workplace they too sought to learn more about him, from which they were able to identify the most appropriate tasks to assign:

Martin: "When I got there they asked me what my interests were and I said science and maths pretty stereotypical for an engineer but I actually do like maths really like maths so they gave me what they call process and product validation studies so I sort of taught myself six sigma and they did they basically kept shoving that stuff on me because I could do it and I enjoyed it". [Interview 7]

Following a brief induction period, many students then reported a period of time dedicated to learning more about their department and the requirements of their role. For some, this training initially involved learning about their own role requirements and those of their colleagues, by observing them being performed while shadowing others:

Kareem: "Yeah so my job was sort of test development and I worked beside one of the senior engineers erm and I was basically, I shadowed him through the first week or so learning about what he did and how he did his job so that I could sort of do as much of that as I could as a student really without his level of knowledge". [Interview 12]

Mark: "I'd spend a few hours with one guy on like there were a few machines that were all the same with the same guy with different people doing the same job so I'd watch one guy on that machine go to a different department watch him do a different thing just go round all the different sections in the workshop just to see what everyone did how it was done". [Interview 4]

These opportunities to shadow others enabled students to begin to build a better understanding of their workplace, the parts their colleagues play within it and how that might relate to their own role. Where students gained opportunities to shadow colleagues in the same or similar positions to their own, they were able to witness the specifics of the practices they were required to learn, modelled in action by a competent professional. For some, training quickly progressed from observing others, to active participation in activities, facilitated through a process of scaffolding

Brad: "At the back end of the week, I began working on a small development project - a sequence of around 8 tasks which would designed to require around 2-3 days of development

each and would build on one and other so that at the end, I had a working piece of software and accompanying website. After each task, I received a one-to-one code review whereby an experienced developer would look over the code and suggest ways of improving it technically and so that it would match the company's coding style (e.g. including simple things like leaving whitespace in the right places)". [Facebook]

The concept of scaffolding was formulated by Wood, Bruner and Ross (1976) as an extension of Vygotsky's zone of proximal development. They suggested that problem-solving and skill acquisition are most effective when facilitated by the assistance of a tutor. Whilst scaffolding learning, the tutor's role is to support the learner through selective intervention that enables them to independently perform that which they are capable of alone and perform that with which they need help, with selective assistance. As the learner progresses, they argued, it is the task of the tutor to adjust the task requirements and shift more responsibility for the overall outcome to the learner. For Brad the provision of opportunities to have his learning scaffolded enabled him to incrementally develop some of the skills and knowledge required to produce a working piece of software, with regular feedback, monitoring and guidance keeping him on track.

Nielsen (2008) suggests scaffolding for the instructor to be a matter of evaluating the learner, handing over some aspect of production responsibility and building trust. From the perspective of the learner, Nielsen argues, it is a matter of accessibility and a form of entry into their profession. The provision of scaffolding opportunities Nielsen suggests, implies that the learner is to be introduced to new assignments and workplace domains that ultimately lead to a greater level of responsibility, and scaffolding therefore involves a transformation of the apprentice's social situation as they are given the opportunity to participate in more significant workplace processes. For Kevin, scaffolding was indicated to be an intermediary step in his training, one that was eventually proceeded by the opportunity to work on legitimate tasks almost completely independently of external supervision:

Kevin: "We used Ansys and there's like a million and one opportunities to push the wrong button and send it off doing something it shouldn't and so he talked me through that one sort of step by step as I was doing it and I was sort of scribbling down notes as I was going through and stuff... it started off like with me shadowing somebody and so they'd do three or four drawings and save the last one for me to do and they'd be stood over my shoulder like making sure I didn't delete everything I'd done from the last three hours but then as I went through the year they'd ask me to do something and "yeah, yeah no worries" just come back in like two hours-time and they'd sort of go through my drawing and make little changes that I had to do". [Interview 3]

A handful of students also reported gaining opportunities to briefly learn from their placement predecessors in these early weeks of their placement, during a limited period of overlap before their peers were scheduled to return to their higher education studies:

Robert: "What helped is what they do is have a two week overlap period of the interns that are leaving and the interns that are starting so you kind of you would shadow someone. You were taught by the previous intern erm the intern I was with erm he stayed on for like 6 weeks so ...so he just went we basically shadowed him for about 3 weeks, 4 weeks ... and then when they left you'd go in on the Monday and be like right he's not here don't know who to ask but no you were given a handover period". [Interview 9]

Brad: "Crossing paths with my predecessor was quite cool as I got to see what he was working on and this was really reassuring to see that he was working on something that was going to be used in the software that the company releases and not something that will just be put aside and forgotten about once he leaves or I leave". [Facebook]

Kareem: "For a few days we shadowed the previous placement student so there was a 2 week handover period ...I think the handover period was really useful really because it's easier I think to understand things from someone who's been through that that process he knows what it's like coming in as a student and to leave after a year so for that particular job role he was very well suited and he was very knowledgeable about it and he found it very easy to transfer that knowledge it was easy to learn from him". [Interview 12]

For Robert, the opportunity to work alongside a former placement student had been a chance to ask questions and to observe his role being carried out by someone in a similar position to his own. For Brad the value came in gaining an insight as to what exactly a placement student could expect to do within the company, finding reassurance in the knowledge that his predecessor's work had been worthwhile. For Kareem briefly working alongside the previous placement student was perceived as being particularly valuable because of the unique insight his predecessor would have into what it meant to be a placement student within that organisation, he felt his predecessor could relate to his situation in a way where others could not and used that insight to deliver more effective training. Lave and Wenger (1991, p. 93) suggest that "apprentices learn mostly in relation with other apprentices". For many of the students in the current study, where their company had hired multiple placement students, opportunities to form relationships with these students had been valued highly, even where the roles of these students were totally unrelated to that of their own. Forming relationships with fellow placement students it would appear, offered more value in the sense of community, support and belonging that these connections fostered for the students as they entered an unfamiliar workplace:

Kareem: "They introduced us to all the other placement students and made sure you know we knew each other so we could arrange things and discuss things with them which I found really helpful to be honest just 'cause they've got a better perspective of what it's like to be a student there". [Interview 12]

Regina: "Amazing, I mean I've made so many friends all the other interns were amazing people I still keep in touch with them and at the opportunity we had to all stay together meet and just socialise at work, share ideas it was incredible... I think it really helped me to better

communicate because I was super shy in the beginning but erm after erm I don't know talking to them feeling like I'm part of the group it was much better for me". [Interview 6]

Kevin: "I think not knowing anybody as well was quite a big thing for me sort of the placement students all by the end of the year had all got really good friends and stuff like we went on holiday about 8 times so especially with me starting a month after, about half of them had started erm so they'd already started forming they're little social groups it's like you're a bit of an outsider". [Interview 3]

In his reflections Mark gave the impression that his placement was quite an isolating experience. His initial struggles alongside being much younger than his colleagues, and being the only placement student led Mark to feel like the odd one out and he expressed that he too would have appreciated the opportunity to work alongside someone in a similar position who could relate to what he was going through.

Mark: "I think it would have you'd have just felt more comfortable with someone else who was in the same boat as you I think I don't know why I just randomly thought of that but it would have helped quite a lot actually you know like I don't know you'd have just been able to talk more to them about it kind of thing ...'cause the office was it was full of like 50 year olds and they were all sort of quite a lot older than me so I didn't have a problem talking to them but it just felt a bit like you were the odd one out quite a bit sort of thing". [Interview 4]

The desire to work along fellow students during placement participation is not uncommon, Alpert, Heaney and Kuhn (2009) found in a survey of students that many felt students should be able to work together on internships, students Alpert et al suggested, find comfort and support from working with others, particularly when working in a new environment. For Mathew the opportunity to work alongside a fellow placement student meant that he had a sounding board, someone to share ideas with and pooling their knowledge and experience together they were able to gradually build proficiency in their assigned task:

Mathew: "having someone to work with obviously helped because it was instead of me being stuck on my own I could be like 'what do you think of this should we do this does this graph look right'? And erm obviously we got things done, I say twice as fast, probably just a little bit faster erm because there was the 2 of us working on it and it did work out really well". [Interview 8]

Though most students reported their initial weeks to involve various opportunities to learn from those around them, some described periods in which their learning was more solitary, but was supported through use of instructional elements of their team's shared repertoire of resources such as tutorials, manuals, handbooks and guides.

*Regina: "Erm what helped me in my learning were the fact that there were a lot of platforms that *placement company name* had for their employees they had so many useful internal pages and websites created by *placement company name* employers to help people get up to speed with all sorts of technologies used". [Interview 6]*

Martin: "Some of it was sit down here's the theory can you, you know get your head round that especially, the statistical process stuff it was kind of like here is the handbook on statistical process control you know write an excel spreadsheet that does that please and figure it out yourself". [Interview 7]

As was described in Tom's narrative like some of his peers, Tom started out using tutorials to gradually develop his understanding at the beginning of his placement but in response to a sudden shift in the social make up of his workplace, he found himself being prematurely advanced into the responsibilities of a more established team member to meet the changing needs of his company:

Tom: "The guy who hired me was sacked in my first week ... because they lost one of the team I was pretty much thrown in the deep end I had to get my hands stuck in pretty much straight away so erm it was good 'cause I managed to test myself ...Erm so when John was still there in the first week I was using Solid Works which is a CAD system I don't know if you know it? So, I was basically doing Solid Works tutorials and basically practicing modelling. I worked for a valve company so I was practicing modelling the valves that they do, then in the second week it was kind of a Ross would give me a crash course in what I needed to do something and then he'd set me off with it and just said if I had any problems I'd ask Warren who was the other guy". [Interview 2]

The loss of a key member to a small team meant Tom could no longer be afforded the time to learn steadily through tutorials as the situation called for all hands-on deck to compensate for the reduction in the team. Despite suggesting he had been "thrown in at the deep end" Tom had found this transition enjoyable believing it had been a good opportunity to put his skills and knowledge to the test in a more authentic workplace task. Walmsley, Thomas and Jameson (2006) found hospitality and tourism students to recurrently report this notion of being thrown in at the deep end whilst working for small to medium enterprises and cited the work of Stewart and Knowles (2000) who reported similar findings where students in small firms were expected to perform and contribute immediately. In the former study, students were suggested to have indicated that despite a lack of formal training they were satisfied that they had been able to learn more than some of their peers through the experience of immediate hands on experience. Though students in the current study also reported some positive experiences associated with a lack of introductory training such as an opportunity to push and test themselves, for many, more initial training would have been the preferred option if it had been available.

Nielsen (2008) suggests that through training such as scaffolding a newcomer is supported by their colleagues to improve their ability to participate in social practice, both in the sense of being supported to become a more competent employee and also in the sense of developing a notion of belonging to the community of practice and developing a professional identity. Citing Lave (1997) Nielsen suggests that this sense of belonging and professional identity formation is fostered through opportunities for recognition as an important, trustworthy and skilled community member. Purely the act of electing to dedicate time training the newcomer Nielsen argues is in itself a form of professional

recognition that demonstrates to the learner that they can participate in the community in a significant way. Jack for instance seemed surprised that as a placement student he was offered generic training:

Jack: "There was the generic training that we all got, bearing in mind we're only placement students that was very good". [Interview 5]

From opportunities such as these, Nielsen argues, a newcomer is able to establish a trajectory whereby they see a future for themselves in their intended career. Where little time is dedicated to training newcomers, the risk to identity is to insinuate to the learner that they are not worthy of being allocated training.

As highlighted in theme one, a lack of initial training in Mark's workplace, appeared to contribute to Mark feeling as though he was inadequate and for a long time feeling as though he was not a valued part of his team. Antoni suggested he felt his colleagues had been too busy to teach him and that as a placement student he was not deemed worthy of receiving training. He expressed his envy of others who were able to participate in structured training schemes and explained that he too wished that was something he could have experienced

Antoni: "no training well I know that some companies they've got training scheme which probably I would wish myself to get into such one erm but they've been in the industry for years and they're too busy to teach you anything so it's like ok here's a problem here's like a few constraints and work out which is sort of good and bad, good because erm well you have to figure out things on your own and you have to sort of work out who can help you with what, with where to look for another resource for who can help you with so it's like erm well its good and bad... it's like 'what's the point doing this (training) he's someone who might never come back". [Interview 11]

Though Phil worked for a larger corporation and was under the impression that officially he was meant to have dedicated training time, he believed that in the course of practice, he was denied access to this opportunity:

Phil: "these things get neglected because people don't rate placement students particularly highly on their priority list so you get that kind of thing, the dismissive kind of way... I don't think that's anything other than perhaps erm how anybody, anybody in a busy work environment might perhaps treat somebody who is after all fairly low down the scale of things erm so I didn't sort of, obviously it affects personal relationships when people are clearly neglecting their responsibilities towards you if you like, if they have if they should have maybe a training role for you and they didn't fulfil that then that sort of thing was quite evident". [Interview 1]

Based upon the suggestions of Wenger and Snyder (2000) Li et al (2009) state that a strong learning community is one in which interactions and relationships are based upon mutual respect and trust. This Li et al argue, creates a social structure where members can share ideas and artefacts that help individuals make sense of new knowledge, and newcomers in particular they argue are able to benefit

from gaining access to mentoring from experts. As evidenced in the earlier theoretical chapter, the formation of learning relationships stems from interpersonal relationships. Phil himself acknowledged the importance of interpersonal relationships for gaining opportunities to learn:

Phil: "it was largely based on personal relationships I think and attempting to have a reasonable relationship with people so that you could ask questions and get guidance from them". [Interview 1]

However, for Phil a lack of training where he perceived it should exist not only negatively impacted upon his motivation to engage with others who he viewed as neglecting their responsibilities toward him, but also had the consequence of contributing to the development of a perception that he was viewed as lesser to his colleagues as a result of his position as a placement student. Given that identity is negotiated in practice, a lack of training and a corresponding belief that he was viewed as lesser to his colleagues must ultimately have damaged Phil's identity as a valued member of the team and as an emerging professional in his industry.

Like Antoni, Jack suggested he too had been able to see benefits to a lack of training as he felt he had to push himself in his learning, but he also recognised where a combination of learning his role in tandem with learning about his team, office and company more generally had been a lot to try to take in all at once. He later suggested that at times he would have appreciated more guidance initially, particularly given his lack of experience.

Jack: "We got chucked into the deep end straight away and there wasn't that much technical training at all you picked it up as you went... not only are you trying to work out what you're supposed to be doing with your first task you're understanding the company how it works etc. how to access information just the whole new job kind of thing, new office where that kind of environment is all new...the manager was fairly you know let me get on with it sometimes to the point where I could have maybe done with a bit more support because I don't know what to expect ...just a little bit more guidance really so you know it's good that he left it up to me to you know kind of figure it out myself it was challenging me but also showing that he's got a level of trust but sometimes I just need a little bit because I've no idea what to expect I've never done it before kind of thing". [Interview 5]

Like Jack, Kevin also expressed that he had desired more guidance particularly in the first few months which he had found especially difficult. Like some of his peers he recognised where he would need to ask his colleagues for help with aspects of his learning, but being shy in nature, insecure in his abilities and cautious of irritating his colleagues, he found himself wasting time, struggling with attempts to work independently before eventually finding the courage to ask for help.

Kevin: "Erm pretty daunting like not sure if you're doing it right or like it takes me a while to get used to new environments and I'm quite shy and don't want to ask too many questions like you don't want to be the guy that asks a million questions erm like drives your boss up the wall kind of thing so I'd be sitting there not really sure what I was doing and just sort of clicking and hoping I'd find the answer erm and then eventually sort of "oh I've been doing this a bit too

long now I should probably go and ask". I'd sort of try and bunch two or three questions together and try and find where my boss had gone or whatever but yeah it's quite daunting because you're going into a big company that everyone else there seems to know what they're doing and you find out that afterwards that sometimes they're about as clueless as you". [Interview 3]

Many of Kevin's peers also reported finding the transition to the world of work to be one of discomfort.

*Mathew: "Stressful, just suddenly to be thrown into *place name* which is the manufacturing site where there's lorries driving around and there's people driving *product* around trying to run you over and you're stood here in this factory and no idea who anyone is you don't have any friends you're suddenly living in *location name* I'd never been to *location name* before so stuff like that it's just very crazy". [Interview 8]*

Sam: "Erm pretty horrible to be honest I'd just moved away from home it was the first time I'd done that I was living by myself in an apartment I had my own apartment that was pretty horrible and then the team that I was in it was coming up to their sort of busy silly season and the whole team went to America for a month so I was sat on my tod trying to learn how to do it". [Interview 10]

Many were able to progress during this period by reaching out for help from their colleagues wherever they felt in doubt:

Sam: "I just asked people to be honest because the software is generic software which is quite good so I could learn how to use that. Actually connecting to the cars was slightly different so I were trying to learn how to do that and then my manager while he was in America he kept sending me work and was like oh we're really busy can you just do this for us and I'm like well I think I can, so I got a bit of help... I mean luckily I'm not shy I'm not backwards in coming forwards, it doesn't really bother me I can talk to anyone, so I'd just ring them and ask them". [Interview 10]

Seeking and receiving informal assistance from colleagues as and when required appeared to be a key method by which students were able to progress during the course of their placement. For some this was mode of learning was an implicit expectation within their community:

Mark:" I think they kind of left me to my own devices a bit and just expected me to go up as and when there was a problem, there wasn't so much there wasn't much training involved as such it was more here's your project here's what you need to do if you have any problems like ask someone sort of thing". [Interview 4]

The majority of students reported that they felt their colleagues were happy to offer help throughout the year whenever needed:

Tom: "Most things I'd managed to pick up with a bit of a, he'd just show me to start off with erm, but he was always there if I ever needed anything explaining he'd do it, he was a very smart guy so it helped". [Interview 2]

Regina: "When I was absolutely stuck I would go an ask them erm whenever I went to them to ask them something they were very helpful and very cheerful I just didn't want to be annoying so yeah they were very open to help". [Interview 6]

Kareem: "I would go to them for help they were all quite open and happy to help and even to the point of the head of durability you know he was quite approachable and it was easy enough to go to him to ask for advice if need be, no one ever really turned you away which was nice". [Interview 12]

Though many students suggested they felt comfortable asking for help, occasional references were made to suggest that some worried about asking too many questions or displaying their inexperience to those more knowledgeable than them. This led some to hold back from asking for the help they required.

Kevin: "You don't want to be the guy that asks a million questions erm like drives your boss up the wall". [Interview 3]

Kevin: "My rotation manager had their own stuff to do and they didn't want to be bothered by a mere placement student and stuff like that... Looking back it was just my thought process but when I was in the situation it was definitely like oh god I can't ask her that she'll be annoyed". [Interview 3]

Mark: "I dunno because they're just trying to get on with their job and I'm stood there thinking what's going on here they probably wanted to get rid of me". [Interview 4]

Regina: "My approach was to try and investigate as much as possible on my own and then when I was absolutely stuck I would go and ask them erm whenever I went to them to ask them something they were very helpful and very cheerful I just didn't want to be annoying". [Interview 6]

For those whose inexperience led to mistakes, the reactions of their colleagues were typically viewed as supportive and constructive:

*Darren: "Down the production line there's just quite a lot of stuff that you shouldn't really touch and you shouldn't just get involved with and I was looking at an issue on the boots and I closed one of the boots on the car thinking you could just close it and you can just open it up again unfortunately not it was an electric boot and there's no power to the car until the car actually comes off the line so you have to take the seats out take all the speaker system out and crawl through the front of the car too get through to the boot and this is all on the production line while people are still trying to build the car... my manager took me to the side after and said you did the right thing you stopped and you helped and you fixed it there's guys that have been at *placement company name* still making mistakes just be willing to help and be willing to fix it don't worry about anything simply things like closing a boot can cause a few problems but you've still get involved and do stuff". [Facebook]*

For Steven the work placement year helped him to realise that it is acceptable to go into industry as a newcomer and not yet know all there is to know, he came to feel that competence was relative to an individual's level of experience and felt that this was something his colleagues also understood and appreciated:

Steven: "The thing that I couldn't understand before placement and understand now is that they have done this, we're having to do exactly the same thing, we're approaching a job never

done it before none of us have ever worked in engineering before, in that company before, in that sector before, they know you don't know a great deal at all about it, chances are they'll provide you with training and all that stuff but you'll still struggle and people do and they understand that, you've got to think if they applied for a job and they were asking for somebody who's like a senior mechanical design engineer and he doesn't know what to do that's different". [Facebook]

This was a sentiment echoed by Robert who demonstrated where he was given allowances based on his status as a legitimate peripheral participant. He believed he and his placement peers had been afforded a greater freedom to make mistakes than their more established colleagues:

Robert: "I remember someone did something wrong one of the interns did something wrong and another one he said something like 'bloody interns' or something like that and another one said something like yeah he's an intern but that means you need to give him a bit more leeway because he's not done it that long, but they backed you up". [Interview 9]

Some suggested that the reassurance that came from knowing they were not held to the same level of accountability as their more established colleagues gave them the confidence to persevere in their attempts at participation without reservation:

David: "End of the day you're an adult and you get treated like an adult they're not going to think you're a student... you're there to make mistakes because that's how you learn best". [Facebook]

Nick: "I scrapped 8 grands of emissions tests because the car didn't want to work that week it does happen people do make mistakes we're all human but as long as you don't try and do anything daft like cover it up and you've asked for help its okay". [Facebook]

As the year progressed and the students grew in experience the majority suggested their responsibilities gradually increased, as did in many cases, their ability to make valued contributions and work without guidance. Cope, Cuthbertson and Stoddart (2000) were cited earlier as arguing that an essential aspect of the socialisation into practice is the potential for making contributions to the communal enterprise. To gain professional acceptance in the process of acculturation they suggest requires from the newcomer a certain level of familiarity with the workplace context, self-confidence in relation to their capability to work within that context, and acceptance from professionals, which must be earned through a process of working within the community and incrementally building professional trust (Cope, Cuthbertson and Stoddart, 2000). To a large extent, it would appear, that students in the current study were able to progress toward greater levels of responsibility and contribution organically over the course of the year as the students and their colleagues gradually developed confidence in their abilities to better understand their workplace and the nature of their role within it. Notably many students indicated that this shift became particularly evident in the final months of placement after a steady period of adjustment:

Sam: "It was just fantastic I mean by the end of it, the sort of last 3 or 4 months were fantastic I wouldn't change anything about it... so once everybody was on a clear footing and they knew what I could do and I knew what I could do I knew what I were allowed to do and it just seemed to flow". [Interview 10]

Tom: "Towards the end of the year Ross was happy saying this needs doing if you struggle let me know about it ask me, obviously to start off with I didn't know that much about valves as such, so it was more of a this is this, this is that, this is what you need to do, so then it became more of a can you do this, they'd just send me an email saying this needs doing have a look at it". [Interview 2]

Kareem: "I felt ready and toward the end of the placement erm I would be sending tests out to the workshop and to the driver control centre and making sure they're happy and the communication wouldn't come back to me through you know my supervisor or my manager, so the contact was directly between me and them rather than an intermediary which made me feel a bit more responsible for it I would say". [Interview 12]

With increased responsibility often came an increased sense of achievement and satisfaction for students, stemming from the knowledge that they were capable of authentically contributing to their workplace.

*Regina: "I had a huge project assigned and erm I shipped it I mean and by shipping it I mean its live on production and it its live on all versions of *product name* on all markets and that has been incredibly rewarding for me to be an intern and to do such a huge project on my own". [Interview 6]*

Many students prior to embarking upon their placement year expressed that they had hoped to work on legitimate tasks and make genuine contributions when electing to participate on a placement, achieving this goal led many to feel that their placement had been a fulfilling, worthwhile endeavour and a valuable learning opportunity:

Kareem: "Yeah like I say they wanted to give me as much responsibility as they could so it was like a proper job and that's what I wanted out of it I didn't want to be there as a student who makes tea for people I'm not going to get anything out of it and neither are they and at the end of the day it's a business and they wanted to make money". [Interview 12]

*Mathew: "it's good to know that I'm now back at uni, but *placement company* are still using this thing that I worked on for 3 months and its helping them get things done faster and more efficiently... that's one of the things I loved about placement I now see a *car mode* driving down the road and I can look at it and go oh yeah I did that bit". [Interview 8]*

Charley: "You have a 2 week settling in period and then they're like right I need you to do stuff so you do actually make a big impact in the company you're not there to make up the numbers they do rely on you quite heavily and after the first 6 months that's pretty much it you pretty much fly solo they're not as helpful they still helped me out where I worked but they leave you on your own and see what you do so that's how it works so you do make a really good part of the company which is really worth it". [Facebook]

Brad: "I wasn't sure if it would really be that beneficial to a mature student who's got some experience of working life; but in actual fact I think I've picked up loads of good working habits

that just don't get taught in an academic environment. I was re-assured at my interview that I'd be working on real things that would make it into the product my company sells; I half expected this to mean, "I'll get to work on 1 or 2 features over the year" - but this is far from the case - today I finished working on one of their top 10 customer requested enhancements; and it was only a week or two ago that I was working on something that a full time employee had been wanting requesting since he started 18 months ago (Plus he said it was the best new addition to version 12.2 of our software!). My contribution has REALLY made a difference to the product". [Facebook]

One student, Martin, suggested that at around the mid-way point his responsibility level peaked to be mostly in keeping with that of many of his colleagues, and at this point he felt his once steep learning curve had come to hit a plateau. Reaching this level of responsibility, Martin felt, meant that he was able to contribute to the company to the same degree as the majority of his colleagues. He did however observe where experience factored in to elevate a person's ability to contribute in a way that could only be achieved as a consequence of participating in a community of practice over a prolonged period of time.

Martin: "Once I learned what they actually wanted from a report what they actually wanted me to do erm it became much easier and from that point it became yeah you are now contributing at the same level as everyone else, again there's a difference in experience so it did happen while we were there that erm we were having a problem, it's kind of this weird thing where someone says oh yeah 20 years ago we had this problem it's this and that's the thing with experience where I would have had to do loads of trials try lots of different things to figure it out someone who was there who had seen this problem before again ammunition hasn't changed for a hundred years basically it hasn't and erm he'd got all this experience so there's the contributing in terms of doing what they need you to do but there's the contributing in terms of experience and I wasn't at that level". [Interview 7]

Tied up in issues of responsibility and contribution unsurprisingly were notions of competence. To Martin the old timers' abilities to contribute where he could not, centred upon expertise developed through experience. For Mark a perceived deficit in his own expertise early on led to feelings of ineptitude and a perception that he was unable to make valued contributions or form a legitimate part of the team. Given the importance ascribed to displaying competence in the workplace, and its implications for the formation of a professional identity, it is unsurprising that many students desired opportunities to gain feedback on their performance as they participated in workplace practice. For some, feedback came by way of scheduled reviews:

Kevin: "So each rotation they had to fill out about 20 questions and they scored you from one to ten ... there was one of my managers that I thought I got on with and then I got my end of placement feedback and got a little bit slammed in it, erm so I wasn't very happy about that ...so it stuck with me a little bit and what he'd said I could kind of see why he was saying it because like communication was a bit of an issue for me like I was fairly quiet erm but he'd scored me a lot lower than I was expecting so I sort of made a conscious effort to get my managers to tell me what I needed to do to improve and get regular meetings with them and just pester them for feedback early in my placement so I could bring it up a bit and make changes". [Interview 3]

For others where explicit feedback was desired, they would have to ask for it directly:

Antoni: "I had obviously like a chat with my supervisor which I actually had to at some point I actually had to ask for myself I'm here like 4 or 5 months already it's like erm am I doing good am I doing wrong give me some feedback erm 'cause you cannot improve if you don't know what you're doing wrong...erm yeah, yeah my manager said that he's happy he obviously see that I'm not lazy and that I wanted to do stuff it was well probably was my whole point to know what they think about me what am I doing there is like erm, you can sit like scared in the corner and hope you do it right or go and ask erm so yeah I got pretty good feedback about that". [Interview 11]

Where students gained opportunities for feedback there was the potential for improvements to their self-efficacy, and where they gained constructive feedback there was the potential to identify ways in which to improve. This was the case whether the feedback stemmed from formally planned reviews or more casual interactions.

Kevin: "as you go through the year and people sort of you get a bit of a reputation because "oh he's really good at this and that and the other" and all the managers they say they didn't talk between placements but they clearly did erm so sort of I'd get into my next placement and they'd say 'oh I've heard things about you I've heard good things' and so it was quite nice just getting little bits of positive feedback". [Interview 3]

Where a greater emphasis was placed upon negative feedback above and beyond praise however, there was the potential for some to feel disheartened:

Mathew: "The feedback you get from workplace I always at first I really struggled 'cause at uni you get graded on everything at school you get graded someone says this piece of work you handed in there you go there's your mark for it, this is good, this is bad, don't do this all that stuff you go to work and say you present to the director of quality and he doesn't say a word to you when you finish you just say is there any questions and he goes 'no thank you' and you say 'thank you' and walk off and then you're walking off and you're thinking was that good did he like that is everything ok is he going to fire us what's going on?...I learnt by the end that silence is good if no one says anything to you you've done a good job...but then I feel like that's really demoralising. [Interview 8]

Mathew, like many of the study participants, had to adjust to the fact that most workplaces do not offer the structured feedback opportunities that universities offer through formative and summative assignments. On placement students had to identify new ways of gauging whether their performance was appropriate and their contributions adequate.

For Phil, of equal importance in feeling able to display competence and make worthwhile contributions was access to opportunities to do so. When Phil joined his placement team, like his peers he sought to work on legitimate projects, but he came to feel that as a placement student he was denied access to authentic tasks:

Phil: "It was clear early on that we weren't going to be formally involved with projects, project management, with the projects which were actually happening within the factory we were quite clearly kept away from that actually which I found slightly puzzling, even if we weren't allowed to spectate even on existing projects which I found rather odd but... if you're gonna go with a with that kind of with that kind of placement idea in mind that you might get something out of it in a project management sense it doesn't seem to me to be any great harm in being involved at least just spectating on the process almost being involved in meetings and so on that never happened and so I realised that if I was gonna develop that then it would have to be away, away from the main projects being run on site so you have to make your own".
[Interview 1]

Despite feeling as though he was denied the opportunity to contribute to existing projects, through discussions with colleagues from which the team's needs could be discerned, Phil was able to identify a project of worth, which was brought to fruition with the assistance of his superiors who elected to fund it. Phil explained that he had advocated for his own project based upon a concern that had he not done he would have little to do over the course of the year. In order to develop a trajectory of participation in a new community an individual requires access to, amongst other things a wide range of ongoing activity and opportunities for participation (Lave and Wenger, 1991). As it is through access and participation that a newcomer is able to learn about work, it becomes essential that they attempt to negotiate opportunities for access and participation where this is restricted (Pang, 2015). Billet (2001) however proposed individual agency to be just as important as opportunities afforded by the workplace for learning to take place. How an individual chooses to engage in workplace activities and shape what they learn is influential and has the potential to overcome the challenges of a limited learning environment. Though Phil felt restricted as to what he was allowed to do he felt he used his drive and skills of communication to ensure that he could still gain an authentic experience in project management.

Early on in his placement Phil had hoped to make a good impression with his colleagues, he had ruminated on the idea of trying to gain a graduate position with the company and knew to do so would require successfully demonstrating to his team that he could become a valued member of the community. Phil's hope of working toward gaining a long-term position with the company resonates with the notion of being on an inbound trajectory, whereby a newcomer seeks to become a full participant in the community's practice, and their identity becomes invested in their future participation, despite present participation being largely peripheral. As was evidenced in Phil's narrative however with scepticism surrounding the culture of his company, and his own personal issues in adapting to a corporate environment, Phil came to realise his future would not reside with his placement company beyond the year to which he had committed.

Phil: "You go in with the anticipation of making a good impression and maybe being offered a place post-placement a work-place post placement if you like and that was as it turns out it's

not something I was interested in and nor, nor was it something that was probably gonna be offered as it turned out so it was a mutual thing with that not that there was any great animosity but I think we, I think both sides realised that I think perhaps there wasn't going to be, it wasn't the most appropriate setting for me". [Interview 1]

Phil's narrative is interesting in that, it was clear that from an early point in his placement journey that he had shifted to an outbound trajectory, one that was leading out of his placement community. Where an individual's trajectory is leading them away from a community what becomes important is how current participation can enable what comes next, it requires a person to find a different position with respect to their community and see themselves and the world in new ways (Wenger, 1998). For Phil, though he had no intention to return to his company, he chose to remain with them for the year not only to enable his progression to the next part of his course, but also to use his experience as an opportunity to learn more about himself and to come to understand what that might mean for his future.

Phil: "I learned a lot about what I was wanting, and I think it was clear to me that what I'd experienced was a useful experience and it clearly meant that I was probably better suited to a more academic environment on the longer term which is why I'm still here, in that respect I guess... it was an important experience, I think, had it not, had I not done that or had I done something else or had the course not been a sandwich course I think I would be I wouldn't be here doing what I'm doing now I don't think because I would still have had some questions unanswered about where or what I wanted... Yeah I think that's the biggest, that's what I got out of, of it, probably the most important thing I got out of it was the, an awareness of where I am in a wider context as a person and I realised those sorts of environments are probably not the best sort of thing for me so yeah that was probably the most valuable thing, a bit of a negative thing if you like but certainly none the less valuable". [Interview 1]

Phil's story shows the complexities inherent in community membership. Though he knew that within 12 months he would continue his studies and would not return to the company Phil still made efforts to learn and succeed whilst on placement, seeking to demonstrate competence within his role, whilst simultaneously rebelling against practices with which he did not agree, such as those relating to bureaucracy and social pretence. Though in communities of practice theory the ways in which a community might reject and thus marginalise its members is discussed, little reference is made to instances where individual members maintain their membership yet in large part reject their community. A sense of trajectory is suggested to provide a way of discerning what matters and what does not, and what will and will not contribute to a person's identity. For Phil it would seem learning was still enabled in this instance, because he had been able to identify and chose to perform the practices explicitly required for performing his duties of his role, based upon a desire to succeed. Though he was less inclined to adopt his community's sense of culture his ability to demonstrate competence and willing in relation to some of the communities valued practices sufficed to maintain his community membership, at least in the short term. Wenger (1998) suggests learning events and

forms of participation are defined by the engagement they afford in addition to being defined by their location on a trajectory. Even a very peripheral form of participation can become central a person's identity because it leads to something of significance. Though Phil was not fully engaged in the process of acculturation into his workplace, he still experienced a shift in his identity as a consequence of his industry experience, as it taught him a great deal about himself and his ability to adapt to different contexts and allowed him to learn what he didn't want of a workplace.

Like Phil, many of the students were able develop or adjust their career trajectories as a consequence of placement participation. Many suggested they had gained positions on their companies graduate schemes, while others learned more about what they wanted from their career moving forward.

Tom: "I think for my placement I preferred it being quite small 'cause I had the chance to get involved with a lot of different things, I think further down the line I'd like to get in with a bigger company and work my way up but for placement I think it worked well... I want things to aim at, I don't want to be sat where I am which at the company I worked at there wasn't much chance for progression and promotion which I think I'd be driven a lot more if I had the promotion to aim for". [Interview 2]

*Regina: "Erm part of it, the masters that I'm going to do is erm at *university name* and it's called Web Science and big data analysis erm and during my placement because I worked in *company name* erm they have a huge focus on big data...so I really felt attracted by this world of big data and information retrieval so it really helped me a lot toward taking this decision to study this definitely". [Interview 6]*

*Mathew: "It makes me excited now though to go off and use stuff 'cause like it makes me realise you don't learn everything and then just sit in a job you're always learning new things and things change and it makes me, before I always thought I could go to somewhere like *placement company name* I could work there for the rest of my life but being there you kind of think you should experience different things and you shouldn't just work in one company forever as nice as that would be and I could probably still do it you should experience different bits of engineering 'cause then you might find that something you learned in *placement company* might be really useful to somebody else in a different company". [Interview 8]*

Mathew described how he had been able to gain a graduate placement position with a different department in his company because of his insider perspective. Having become absorbed in the culture of his community, he felt he was better able to understand their requirements and demonstrate where he could fulfil them.

*Mathew: "Because I knew *placement company name* because I'd worked there for 6 months by then I knew how *placement company name* worked and I knew how, how to have a meeting and I knew what to say and it was just easier because I'd been because I was an internal candidate it was just I know what they want to hear". [Interview 8]*

Many suggested that they felt as though they had changed as a person as a result of their year spent working in industry, citing improvements to enthusiasm, motivation, maturity and professionalism. When asked if they now identified as professionals in their industry however, responses indicated that this was an identity shift the students had yet to achieve:

Tom: "No I'm still a student, I don't even think I'll ever be an engineer, I do enjoy it and I would like to get into the engineering work but I don't feel like I'd ever fully class myself as an engineer, there'll always be people that's better than me". [Interview 2]

Researcher: "And then when you went on that placement did you feel like you were a student, or did you feel like an engineer"?

Mark: "No, I was a student, I was a student I don't understand how I'm not a student now, I was definitely a student".

Researcher: "So, what's the difference now what makes you feel more like an engineer now than when you were an engineer in that year"?

Mark: "Erm I think the fact that you always knew you were going back to uni like from September you always knew you were gonna be back at uni". [Interview 4]

Despite indicating that they did not identify as professionals, many of the students suggested that whilst on placement, it was very rare that they felt like a placement student, often they were able to identify as an employee like any other. For many, their ability to do so was perceived in part to be a result of being treated as such by their colleagues:

Martin: "No erm the placement students are treated exactly like graduates are erm having said that in the first couple of months probably the graduates are because you've got to build up that level of trust and where your ability level actually sits but no erm everyone treated me as a graduate everyone referred to me as a design engineer for anything I was never you know I was never called an industrial placement student I sat in meetings with the MOD and he'd be like yeah he's the engineer that's done this so it was pretty good". [Interview 7]

Kareem: "Erm I suppose at the start I did (feel like a placement student) erm for a little bit but it sort of quickly faded away to a point where toward the end people didn't realise I wasn't a placement student so a few of the people I'd talk to would come up surprised saying are you a student and I'm like yeah and they wouldn't realise they'd just say 'oh I thought you work there in durability'". Interview 12]

For Kevin it would seem, in addition to the way he felt he was viewed by his colleagues, issues of self-efficacy were also instrumental in determining to what extent he identified as an employee as opposed to a placement student. In the process of becoming, self-belief was for Kevin as influential as the belief of others.

Kevin: "So the first few weeks it did feel like that (like a placement student) because you know like you're always asking questions you don't know any of the answers and just like little things go wrong and you think it's the end of the world because your computer crashed and you don't know why and so but as you go through the year and people sort of you get a bit of a reputation because 'oh he's really good at this and that and the other' and all the managers they say they didn't talk between placements but they clearly did. Erm so sort of I'd get into my next

placement and they'd say oh I've heard things about you I've heard good things and so it was quite nice just getting little bits of positive feedback when you started your next placement and you can hit the ground running kind of thing erm but I think by the time I'd gone into my second rotation I was getting treated like on a level playing field erm it was just that initial three months where I was sort of really unsure about everything and so they were kind of training me up so they kind of had to treat me a little bit like a learner". [Interview 3]

For Kareem, of further influence to his self-perception as a genuine employee was the level of responsibility he was afforded and what that meant for the way he was viewed by others and for his own sense of purpose:

Kareem: "Erm I'm not sure whether it's that or whether it's just the responsibility that you had was the same as the other graduate engineers for example and I think that that really helped because it gave me a sense of purpose there and rather than going into the typical student role of oh you can just do this job because no one else wants it they gave proper jobs so everyone else saw it as ok he's doing a job that you know any other engineer would do so I guess they just didn't expect you to be a student really". [Interview 12]

Like Kareem, many of his peers felt that the authenticity and importance of the work they carried out influenced the way they were treated and how they viewed their own position within the company:

Jack: "I got treated like an employee straight away like I was surprised I was talking to people from not my department and in the workshop and stuff and to the mechanics and they used to treat me like a proper engineer and I used to go to them and they'd be like right how do you want this doing and I'd be like you're the mechanic mate your you know and I had to direct them and stuff like that and it was massive to be honest...I was doing tasks that say a graduate would have done or an engineer would have done so I rarely I rarely did things where I thought hang on I'm a placement student here and a lot of people actually thought at the end that I was a graduate until I was saying right I'm going back to uni now". [Interview 5]

Though many students insinuated there had been brief moments in which their position as a placement student became temporarily more salient, almost exclusively it would seem the students had felt first and foremost like a regular employee for the majority of their time spent on placement.

Theme Two Summary

This theme has evidenced the mechanisms by which work placement participation can contribute to the formation of a professional identity. When embarking upon their year on placement, students have a limited understanding of what it is to be a professional in their chosen industry. As the student gains access to social practice they begin to build a picture of the requirements of their own role within the community, how the tasks required in their own role may be successfully performed, and how their role relates to that of their colleagues. To build upon this understanding requires access to opportunities for participation. Where this access is granted, participation is facilitated through mutual engagement from which learning relationships may be formed. The guidance and assistance stemming from these relationships may take many forms, but what is essential is that placement

students are made to feel they have ongoing support and that the students themselves seek out this support where required, for effective learning to take place. When students do not feel adequately supported, there is a risk to professional identity, particularly where it is assumed that their social status as placement students means they are less significant than their colleagues and thus not as worthy of dedicated assistance. Where students grow in experience throughout the course of the year, there is the potential for their level of responsibility and independence to increase organically as a function of a burgeoning self-belief on the part of the student and a growing trust on the part of their colleagues. The ability to form worthwhile contributions to authentic activities was demonstrated to lead to a sense of achievement and satisfaction that contributes to feelings of professional competence. Likewise, where students worry about their progression and feel as though they are unable to form worthwhile contributions, they run the risk of feeling professionally inept. Opportunities to progress not only require ongoing displays of competence, but access to opportunities to participate in valued practices from which competence can then be displayed. Though in most instances, students were demonstrated to have gained access to such opportunities through successfully performing less significant tasks, occasionally these opportunities had to be negotiated, requiring individual agency and initiative.

Where students are able to progress on placement they may gradually begin to identify more as an employee than as a placement student. This is in part a consequence of feeling they are treated as such by their colleagues, in terms of the way they are spoken to and about, the labels they are given, the tasks they are assigned and the freedom they are afforded. But self-belief is also instrumental. Where students feel they can contribute to authentic tasks, and do so effectively, there is the propensity to develop a view of oneself as a valued part of the team like any other employee. In this sense learning on placement centres around building competence and professional trust with the development of professional identity being validated by action.

Theme Three - Negotiating Relationships; the Dynamics of Power.

Theme three explores the negotiation of complex professional relationships on placement, inherent in which were dynamics of power. To address the study aims, the influence the negotiation of workplace relationships has on identity development will be explored and I explore how the power dynamics inherent in placement relationships were felt to contribute to enabling and disabling workplace practice. As with theme one and two, interpretations are underpinned with sociocultural theories of learning and a focus is placed upon exploring the meanings students form in relation to their experience of negotiating workplace relationships.

Learning as participation occurs through engagement in action and interaction, and this engagement is embedded in the culture and history of the community (Wenger, 1998). With time and legitimate peripheral participation new members can absorb and become absorbed in the culture of practice thus making it their own (Lave and Wenger, 1991). Becoming proficient therefore is as much about joining a culture of practitioners as it is technical competence (Cope, Cuthbertson and Stoddart, 2000). For the majority of the students, where their workplace culture was referenced directly it was spoken of positively, with references made to friendly atmospheres, celebrations of diversity, and an active emphasis on the support of learning and growth.

Tom: "Yeah it was just one big family really, so it was quite nice to go in". [Interview 2]

*Laura: "The*employer name* environment is such a melting pot of cultures and I love it for that, because it makes you realise how small your own world is, and how you can easily get comfortable within that, but that that is certainly no way to live". [Facebook]*

For the majority of students, the culture of their placement workplace was perceived to foster support and development. As demonstrated within the previous themes this was engendered through collaborative support on a formal or informal basis and through access to the community's shared repertoire of resources. In many cases, further support was also felt to exist in the form of additional social activities designed to encourage personal and professional development.

*Regina: "I really worked on my communication skills a lot because we had so many opportunities to collaborate, so many hackathons in the *department* office, so many social activities we would go to a lot of places as a team we would have like erm weekly lunch together and I learned so much from my team apart from the technical knowledge it really helped me grow as a person...I was afraid in the beginning its *company name* it's a big corporation they wouldn't care about just another intern but it was exactly the opposite erm and also I had so many opportunities to get involved in side projects as well as the day to day work that I did it was just incredible". [Interview 6]*

Kevin: "There was that many things outside of work like they had erm triple E C which is like voluntary work in the community and I think your only supposed to, your allowed 4 hours, I

think they encourage us to do a minimum of four hours, I ended up doing about sixty".
[Interview 3]

Martin: "The graduates are expected to take at least one what they call a stretch assignment which is non-engineering based so the one I was lumbered with, well I volunteered for it actually was organising the annual engineering conference for our business group so that was 60 very high level delegates find a location sort everything out...the bulk of the organisation was left to me which was good I enjoyed that it was a good opportunity". [Interview 7]

Korte and Lin (2013) suggest that an important task for newcomers entering into a workplace community is to develop a sense their own position within their community's structure, where this is done so early on, it can offer a sense of belongingness while uncertainty can result in feelings of anxiety (Korte and Lin, 2013). Imagination is a key mode of belonging, the position a person sees themselves holding can have implications for what they believe is possible and consequently the way they participate (Wenger, 1998). Regina's suggestion that she had assumed her placement community 'wouldn't care about just another intern' implies that she had entered into the community assuming her status as intern limited her value to the community. The arrangement of activities designed to foster participation and belonging however signalled to Regina 'it was exactly the opposite' fostering a sense that interns are considered worthwhile by her colleagues and instilling confidence in her own standing in the community. In conveying that interns matter, and will be nurtured and offered opportunities to engage with and contribute to the community, the community were conveying to students that even from their role as 'placement student' they have the power to form a trajectory of participation, to take on important responsibilities and build relationships that foster a sense of belonging.

Often these activities were formally integrated into the placement scheme, and in some instances, participation was mandatory. Where students were able to participate in such activities, they spoke of them fondly, suggesting their participation had had a positive impact on their experience and had contributed to the development of a variety of skills particularly social skills. From these opportunities, students were also able to form connections with a range of people within their business allowing them to build upon their social capital:

Martin: "In terms of value for me it was actually really valuable because I got to meet a lot of very senior people in fact my boss often complained that because I'd done that I actually knew everybody and I could get stuff you know he'd say oh who do I have to talk to about this and I'd say give me a minute I'll give someone a call erm and it was it was really valuable I learned a lot about organisation and how things work in terms of organising events". [Interview 7]

In their analysis of newly qualified engineer's socialisation into the workplace Korte and Lin (2013) found the development of relationships with co-workers empowered newcomers by granting access to higher quality resources. The relationships newcomers formed with co-workers and managers

affected where and how they fitted into the social structure of their community. In this instance, the provision of this developmental opportunity, in addition to Martin's willingness to participate and subsequently utilise the relationships he built with senior colleagues enabled him to carve out a position of value within his community, by expanding his social network and drawing upon his colleagues as resources when appropriate, Martin was able to offer contributions to his community that even his boss could not.

Though formal development opportunities such as these were most typically described by students who suggested they had worked for larger corporations, even students working for smaller enterprises suggested there had been opportunities for novel learning experiences, such as in the case of Antoni who was able to teach his German counterparts the process he had developed to repair a device, and Jack whose colleague invited him to work in Austria. In these two cases both suggested these opportunities were a result of forming a good impression based upon their own hard work as opposed to an inevitability of the placement programme:

Antoni: "I could also go to Germany they sent me to Germany erm was like a saying ok if you weren't doing well we wouldn't send you because you are just a student but you did well so yeah you can go to Germany and show them what you have done with the device". [Interview 11]

Jack: "It all goes on your attitude because I went there and got my head down I got to go to Austria and take part in a test run because of my work ethic because if you show that you're bothered about what could happen then they'll favour you". [Interview 5]

Some students also suggested they were offered opportunities to temporarily work in different areas within their company. This had the potential to enable students to meet colleagues in different roles, to perform the tasks of their own role better and to gain a more holistic understanding of their workplace and the various positions available within it. This also enabled students to build a better picture of the various facets of their industry and offered experiences from which they could begin to identify in which areas their strengths lie and in which areas they might prefer to work in the future.

Tom: "Yeah, I got the chance to spend a couple of days with them in the year and the same down on the shop floor with the guys as well, they were quite happy for me to move around and experience it all, I enjoyed it...I think that it showed me that I'm more suited to the production side of engineering...having spent time down on the shop floor with the production manager and the guys on the machines and things that seems to be where my skills are a lot stronger". [Interview 2]

*Jack: "That's really difficult erm I'd probably say the work was really good but I think the best overall thing about it was being able to just see the ins and outs of the entire company so we were part of *name* as well which is for new starters not just placement students but you got loads of site visits days out where you go to see and experience different parts of a company the physical assets that they own and what have you, as well as seeing how the*

company runs whether that's financially or operationally I think how the company work I think that particularly stood out as above and beyond not the normal work as particularly good". [Interview 5]

For some movement around the company was engrained in the design of their placement, as they had entered into it knowing that their year-long placement was made up of shorter rotations. The benefits of these rotations appeared to be much the same as the less formal opportunities that other students described experiencing:

Kevin: "There's so many different career paths you could take and having the rotations was quite useful erm 'cause I could see some of the different types of work you could do". [Interview 3]

Mathew: "It was quite interesting actually to see 'cause it is closely related to manufacturing in how you get all the parts and how you actually prepare a factory to start building cars so I think if anything it gave me a good knowledge of how the factory works rather than just being thrown into the engineering". [Interview 8]

For some, opportunities to gain an understanding of different areas of the workplace were not freely given. If the student wished to gain such an opportunity, they had to identify the potential for it and request it:

Mark: "They had like an inspection area and that was something I'd never seen and I think that was the only thing I actually asked to go and have a look...but that was completely new to me I obviously I'd seen workshops before and I knew what sort of machines were in there but this inspection area I'd never seen anything like it so that was one of the things I did ask to go see and spend a bit of time in there... just because the stuff I was designing in the office it went from me into the workshop then it went into the inspection bay and if anything was wrong it came back up to me so I needed to know yeah that it was going to pass there". [Interview 4]

Sometimes however one request was not enough. For some it would seem that in the context of a busy workplace, if the student desired the opportunity to supplement their experience, they had to become more tenacious and learn to advocate for themselves. This was a shift that some students were not yet able to make in the course of their placement, much to their later regret:

*Kareem: "There were opportunities to work in different departments which I briefly asked about and I'd not really followed up and I wish I had really because the way they worked they had a lot of different sectors of engineering within *company name* erm and I only worked within durability whereas if I really pushed for it like the other student did I could have worked in the crash engineering department and other areas...". [Interview 12]*

Lee: "In my department I wanted to move downstairs to the shop just to get a bit of experience and I probably should have because that's what you should be doing you should be going out but the work I was doing I was enjoying so much that I was just like no I want to stay here for the year". [Facebook]

Robert: "Erm I wish I'd asked actually if I could have moved off a project because it did get at one point very, very repetitive and it was mind numbing I should have really asked if I could

have been moved off of that because it was two months of the same thing day in day out and it was so tedious...I should have asked them if there was anything else or if there was any help because it's just getting overwhelming"

Researcher: "So, what's made you decide you should have said that just the benefit of hindsight?"

Robert: "Pretty much, pretty much hindsight thinking yeah, I should have done it the worst they could have said is no and made your point across, but I think that goes to they don't look at you as just an intern but you're there thinking oh I'm just an intern, but they never did so I think it's mainly myself that I didn't do it". [Interview 9]

In theme two it was suggested that the majority of participants identified primarily as an employee like any other whilst on placement, few viewed themselves as a placement student whilst in the workplace. Robert's suggestion that he remained on a task where he felt he was no longer learning anything new, because he felt as a placement student he couldn't ask to move, would suggest that identification as a placement student in the context of the workplace can be disempowering. This indicates the significance of the identity shift that others experienced when coming to identify as employees. Had Robert believed then as he does now that he had the power to at least ask superior if he could move on so that he might continue to progress in his learning, his learning experience might have been quite different. Robert's suggestion that he was becoming overwhelmed by the monotony of this tasks, and Kareem stating he would have had to 'really push' to change roles insinuates opportunities such as they were not always easily accessible. As with Warhurst's (2008) example of student teachers who were denied access to opportunities to teach and attend assessment meetings, some placement students found that despite new and beneficial learning opportunities being possible, they weren't always made readily available. Arguably it is not solely the responsibility of the placement student to advocate for themselves in gaining additional learning opportunities. It is also the responsibility of the employer to ensure students are able to make the most of their placement as a valuable learning opportunity. In recognition of the potentially disempowering identity of 'placement student', employers should ensure that where opportunities to engage in varied activities and travel around the organisation are a potential option for students, that the students are made aware of and encouraged to take up these opportunities, rather than expecting the students to advocate for themselves, which as evidenced, not all feel entitled to do based on their perceptions of their lower status.

Phil suggested the culture of his workplace placed little emphasis on learning. Further, he believed that production pressures had resulted in a culture of bullying that meant that on his placement he was pushed into tasks by his colleagues, that were not appropriate to his level of expertise

Phil: "It was kind of an aggressive environment I found, that whole production environment stressed kind of let's get the next million tins out kind of whatever. I found the whole thing a

little stressed and yeah, so he was quite I think he was quite aggressive erm and I'm not keen on that kind of leadership really". [Interview 1]

Phil: "Yeah quite a masculine, I've always thought of it in retrospect as a kind of masculine environment where you, if you're not seen to match up to the standard or if you don't, you get, it's kind of, kind of a bullying environment as well you're kind of pushed into various directions by peer pressure". [Interview 1]

Wenger (1998) argued that when rigidly clinging to existing ways of working, a community will run the risk that they will "hold (new members) hostage to that experience" (Wenger, 1998, p85). Li et al (2009) suggest further, that where tight bonds exist between members of a community, they can become exclusive and present a major barrier to the integration of newcomers. For Phil, seeking to belong in a community where members banded together to force him into directions that conflicted with the trajectory he sought for himself, left him feeling alienated and 'bullied'. This highlights the potential vulnerability of placement students who as outsiders must enter into a new workplace and attempt to identify and gain access to practices that will enable them to build a sense of belonging and carve out their intended trajectory, all while navigating interactions with community members who each have their own agendas, and hold more sway in enforcing them. When faced with situations of this nature, Phil suggested his typical response was one borne of frustration and incredulity. He suggested however that he had come to learn that this type of reaction was unprofessional and would lead to uncomfortable situations with his colleagues. He would thus attempt to at least act as though he was behaving as expected, even if that meant secretly adopting approaches his colleagues would disapprove of in order to meet their demands as an alternative to confrontation. As suggested by Handley, Sturdy, Fincham and Clark (2006), Phil elected to exemplify a contingent form of participation to notionally fit in to community norms, enough to avoid hostility without compromising his sense of self.

Phil: "I'm kind of, my initial response to these things is to be quite kind of 'well you've no chance' basically, that's not gonna happen. And that's a very poor that's a very poor attitude when you want when you're expected to have that professional attitude. It's very much an awareness, a constant awareness of what you're saying, how you're responding, are you going to respond negatively in that situation should I just take a breath and rework what I'm saying and playing a role and I think I'm not good at that you know it isn't a role that, I'm not an actor you know and I think that's, even if you you'd be saying to somebody yes that's fine I'll do that even though you've maybe no intentions of doing it or you don't think you should be expected to do it and you're going to try and deal with it in a different way or you're going to give it to someone else to do or you know"? [Interview 1]

Though confrontations with his colleagues felt uncomfortable for Phil, in gradually learning to temper his impulse reactions, which he had come to learn would result in difficulties, Phil experienced a shift in his emotional intelligence. Fernandez (2007, p80) defines emotional intelligence as the "ability to empathise, be resilient in the face of difficulty, and manage ones impulses and stress", this Fernandez

argues, offers a competitive advantage in the workplace and tends to make work-life more pleasant. Indeed, for Phil his improved ability to control his annoyance while still rebelling in his own way against the pressures exerted by community, enabled him to participate more effectively and with less day to day conflict.

Kareem's experience, like Phil's, enlightened him as to the complex nature of workplace relationships, inherent in which are power imbalances that risk some being taken advantage of by others. Kareem came to understand this based upon observing his colleagues over time. Kareem explained that he would watch the way individual members treated one another and use this information to form a judgement of their character, which he then used to inform his own behaviour. In watching the outcomes of these interactions, he came to understand the importance of assessing who is to be trusted, and the necessity of expressing self-assurance to those who might seek to take advantage of his inexperience.

Kareem: "I think in business there's a lot of opportunity for people to take you for granted or use you whereas you've got to kind of learn where the boundaries and limits are which I think it's a valuable thing I learnt from placement. [Interview 12]

Researcher: How do you think you picked up on that kind of thing is that something you learned straight away?

Kareem: "Not straight away, I think it was more from observing other people and the way people treated other people and just learning to see you know what makes people tick and how people act with certain people so if someone asks for something and they just brush it off or they say they're going to do something and never do. So just trying to learn who you could sort of rely upon and who's unreliable really and just trying to work around that". [Interview 12]

Emotional intelligence is constituted by personal competence i.e. self-awareness and self-management, and social competence i.e. social awareness and relationship management (Fernandez, 2007). Kareem's reflections suggest that in being confronted by a situation in which his inexperience as a newcomer made him vulnerable to being taken advantage of through the power-plays of his fellow community members, he too encountered situations which forced him to hone his emotional intelligence skills. Increased emotional intelligence is associated with higher stress tolerance and improved abilities to handle adversity and challenges in the workplace in addition to fostering greater optimism which has been demonstrated to combat demoralisation and improve motivation and enthusiasm (Stein and Book, 2006). Emotional intelligence is in addition associated with improved assertiveness, enabling workers to express their feelings and self-advocate in a manner that fosters constructive compromises (Fernandez, 2007). Though in both instances this development brought

with it discomfort, it was for both an important milestone which had the potential to enable more effective participation.

Johri (2015) suggests the formation of impressions within the workplace is of great importance as it these impressions that will impact how employees work together, which colleagues they will interact with, who they will turn to for help etc. For Kareem forming an impression of his colleagues was of great importance for determining how he approached his interactions, but he also recognised it was just as important to try and shape the impressions others formed of him.

Kareem: "Erm I think how to be a bit more professional and how to conduct yourself really how to act around other people how to sort of engage with other people in a way where they'll respect you because I think the business environment is different to being at university or school where things are a bit more informal you've got to put yourself out there a bit be confident and make sure that people understand sort of what your role is there". [Interview 12]

Kareem identified where workplace relationships could be more complex than those he had grown used to in academia, to gain the respect of his colleagues would require him to become more assertive. He realised that it was necessary to make clear to others his role within the company so that they might form a positive impression of him.

Martin, like Kareem identified where the impressions employees held of one another had significant implications for the way they mutually engaged in practice. For Martin, the culture of his workplace was complex, as it was in his opinion made up of two subcultures; divided by generations. Many of the older more established members, he came to learn, had become engineers via the traditional apprentice model of engineering and had experienced working with the company in a time where it was publicly owned. Since that time, it had been purchased by a private corporation, whose values Martin believed were viewed by the old timers as being typified in the more recently hired graduate employees. Though Martin identified a rivalry as existing between his graduate colleagues and those more established within the company, he worked to carve out for himself a place within both communities. Being a placement student, acceptance into the graduate community it appears was almost a given. Though they were younger and valued a different lifestyle Martin made efforts with his peers, having dinner with them on occasion so as not to alienate himself from the group. Having experience of working in a warehouse in his previous job Martin was also willing to immerse himself within this part of the company, typically inhabited by his apprentice route colleagues. In this sense he believed he differentiated himself from his peers as their unwillingness to do the same he believed had contributed to the divide in cultures. By subverting this tradition, he felt he was able to earn the respect of the more established team members. And he in turn took efforts to demonstrate his own

respect for their expertise in a way he believed his fellow graduates did not. By infiltrating this community, and forming interpersonal relationships based upon a mutual respect Martin suggested he had been empowered to gain access to a wider network of colleagues, from whom to learn:

*Martin: "Because I'd worked on the shop floor in my previous job at *company name* I was really comfortable just going up to the shop floor guys and just saying "oh sorry I can't do this can you just show me what I'm doing wrong?" And they all said actually really that's really rare of undergraduates graduates often they'll go to the other engineers before they'll talk to the shop floor guys ... The old school engineers the apprentice training ...their biggest criticism of the graduate scheme was that most of the graduates didn't want to work on the shop floor that also made it easier for me to get along with a lot more people, I think. The graduates were very cliquey there was a I think again at the blue chips because there's a graduate scheme again as an industrial placement student you actually you're actually part of the graduate community so I was obviously invited to all of their events and a lot of the graduates would meet up and go for lunch together but I would have lunch with the guys from the shop floor as well as I'd do both at various points more friends it's easier to get things done erm so yeah I think that helped quite a bit... a lot of the shop floor staff had been there for 20, 30 years they didn't like that the graduates came in and they were on more money than they were on and the graduates a lot of them were cocky I've been to university I know everything and I just kind of said you've been here for 20 years you know that better than I do kind of thing". [Interview 7]*

The formation of beneficial professional relationships was an aspect of placement deemed highly valuable by many, with many of the students suggesting networking to have had a significant impact on their progression. Gibson, Hardy and Buckley (2013, p150) define networking as "a form of goal-directed behaviour, both inside and outside of an organization, focused on creating, cultivating, and utilizing interpersonal relationships". Gibson et al propose that networking fosters positive professional outcomes via the mechanisms of improved access to information and increased social capital. Individuals who network effectively they argue can achieve positive career outcomes by building and nurturing a support structure from which to draw when needed and by gaining exposure to the "right" people from whom to access limited information, which may be used to inform future behaviour.

For some the positive impact of networking was experienced almost immediately as they saw where calling upon their established contacts would come in useful in the course of carrying out day to day activities:

Sam: "there was a resident engineer and then he had a placement student as well so me and him got on really well which helped a lot because if I ever wanted anything I could just ring up and ask him for it and he'd sort it out and I'd go and get it and likewise at my end erm so that helped a lot". [Interview 10]

Kevin: "There was one I did down in Birmingham, that was like a two-day event at the N.E.C. ...and it was a really good two days. Erm it sort, and it helped quite a bit as well because like

one of the people that I met down there when I rotated to my next placement then I actually ended up needing to contact them to get some information from them so it was sort of a bit of networking as well". [Interview 3]

For others the rewards from their networking efforts came later as they began to think about their next steps following placement participation. Mathew for instance described making the most of his access to his company's intranet in the course of his placement, utilising its search function to identify and contact a number of his colleagues across a range of departments from whom he was able to access advice and information in relation to his career progression. He noted how forming these contacts and gaining access to their insights placed him in a privileged position that put him at an advantage to outsiders

*Mathew: "I did find a guy that works in a department that seems quite interesting to me and its contacting him and contacting his manager and saying I need a placement would you be willing to take me on can I do this... So it was just a lot of sitting on the intranet erm google-mail where you can stalk peoples contacts you can stalk their calendars and see what they're doing erm and yeah just again so once you're in the company its quite easy to do that now I've left I can't get that sort of information anymore I couldn't find a graduate that worked in a department. So I think that's now where I benefit someone now applying for a placement you don't know how the company works or you don't know people to talk to or anything so now I've been there I have contacts in there that I can talk to about places I want to work and things like that which say someone equal to me is applying to a graduate role who has never worked at *placement company* and then have to choose which department to go in it's like this really, really difficult or they might end up in a department they think sounds amazing but isn't and I've got an inside knowledge of no actually that will be a rubbish job you want to do this one". [Interview 8]*

For some, networking was an essential constituent of the placement experience, not only for learning during the course of the placement, but also because of a perceived perception of a potential for longer term pay outs. Iyengar (2017 p8) suggests the ability to network effectively is one of the most important soft skills "a candidate aspiring for a job, an employee aspiring for a position in his/her organization, an entrepreneur looking for funds or business opportunities, or a businessperson desiring to expand his/her business should possess". The emphasis participants placed on the value of networking would indicate their agreement.

Aaron: "Some of the guys I've met I'm still in contact with now and 2 years down the line when I've done my degree I might even go back to them. Those guys can help me with C.Vs, contacts they're people who've just been everywhere". [Facebook]

Martin in particular seemed to place a heavy emphasis on networking attempts throughout the course of his placement journey and made frequent reference to where his social interactions within the workplace were underpinned by a strategy to form relationships that would be of benefit to his progression within the company:

Martin: "I was at the engineering directors table with all the really important guests...every business unit has its own graduate development manager so in my case a rather nice person called Hannah and she was based on my site which was very useful and we used to chat all the time and she was based in the library and I'm friendly with the librarian so I used to see her quite a lot and chat to her and she said it's a very good opportunity she basically said go for that one because you'll get to know everybody and it was definitely a strategic thing of yeah". [Interview 7]

Martin: "To be honest the graduate network whilst it was useful for certain things it wasn't that useful for getting ahead because they were all at the same level but palling around with the people on the group as well as the senior people who would occasionally come to the group I'd take them out you know because we'd get someone very high and mighty from central management and they'd say oh you just take him up to the canteen so I'd end up sitting with them and having lunch and actually that was very valuable and I got to know quite a lot of people". [Interview 7]

Though Martin indicated numerous ways in which he felt networking had facilitated his progress within the workplace, he also believed this practice had the potential to work to his detriment where his superior, who he believed held different values to his own, resented his focus on networking and to some extent, held it against him:

Martin: "On the evaluations if there was one thing you did know I can't remember how he worded it but he said erm 'pays more attention to more senior colleagues' ...I do think his personality was the type that he didn't know how to network he didn't do the socialising not it's a horrible word but schmoozing he wouldn't schmooze somebody as far as he was concerned he had his job to do and he would do it, anything else was unimportant whereas he complained when I did the conference as much as I got all my work done there was no problem but he complained because I wasn't spending all my time on my regular work he was like why are you doing that it's not engineering it's not your job kind of thing". [Interview 7]

Wenger (1998) suggests diversity is just as integral as homogeneity for productive practice. Each member of a community he suggests must find within it, a unique place for themselves. Thus, the trajectories of newer members, do not necessary have to align with those of more established members. The negotiation of trajectories, where it involves generational encounters is more complex than a process of sharing the community's heritage, it involves the interlocking of identities and with it the potential for both conflict and mutual dependency, as the different generations bring to the encounter different perspectives. It can be as much a process of advancement and change as it is conformity.

Despite coming to believe many of his more established colleagues did not advocate nor value efforts aimed toward networking, in the pursuit of an inbound trajectory Martin chose ultimately to determine his actions based upon his own beliefs as to what constituted effective practice in the process of advancement. He believed that in doing so he was able to form valuable contacts and progress in ways even his supervisor could not which affirmed for him that he had made the right choice. Though Martin suggested his review outcome was affected by his decision to network with his

colleagues, ultimately, he suggested, he and his supervisor maintained a positive working relationship as their existed between the two a mutual respect and a level of friendship. Kassing (2000) suggest based upon survey data that those who have high quality, open relationships with their superiors are typically the employees most comfortable to express dissent within an organisation. In this instance, though Martin's supervisor was open about the fact that he did not agree with networking, the perception that his supervisor respected him regardless may have contributed to his willingness to defy convention.

Martin was not however the only student to report instances whereby the power struggle inherent within hierarchal relationships had to be carefully managed. As mentioned earlier for instance Phil spoke of offending his superior, responding in a way that was inappropriate. Though he came to realise how the nature of his response had been unsuitable, he felt that the damage had been to some extent irreparable in terms of trying to form a professional relationship moving forward. Though Phil indicated he learned too late what was and was not appropriate conduct in hierarchal relationships, another student, Scott, suggested he had been able to learn this lesson vicariously, by witnessing the repercussions his peer experienced, when disregarding the etiquette required to demonstrate respect to those in positions higher than his own:

Scott: "There was a placement student that got fired within two months mainly he went above his managers head and went to a director for something, but your manager is your first port of call before anyone like if you've got problem you go to them if you want to suggest an idea you go to them. They've worked hard to get that managerial position and even if you think I disagree you've got to take it up later in life while you've got that kind of power not while you haven't". [Facebook]

Though Scott was able to learn from this observation more about the appropriate ways in which to conduct oneself within the workplace hierarchy, his suggestion that it is necessary to conform, and suppress grievances until the point at which one achieves a more privileged position, demonstrates the influence that perceptions of powerlessness can exercise on an individual's actions within the workplace and suggests an implicit belief that as a placement student Scott felt he was less privileged in the workplace than others.

For Mathew navigating the hierarchy of his workplace was a challenge not only because he had to learn how best to interact with those in a position higher than his own, but also because he too was in a position of authority which in itself involved power dynamics that had to be carefully navigated. Lave and Wenger (1991) have been criticised for failing to fully develop the concept of identity as for focusing almost exclusively on ways in which belonging to a CoP form a person's identity, with less consideration of what that person brings to that community from the outside (Fuller, Hodkinson, Hodkinson, and Unwin, 2005). In Mathew's case though he was a newcomer to the engineering

workplace, his academic experience conferred him with a perceived expertise that reified him as a 'superior' in relation to his colleagues not all of whom had academic qualifications, granting him the power to direct other staff members who had workplace experience but no academic experience.

Mathew: "You've got this hierarchy thing of managers, senior managers and people even below me even as an engineering student the people on the track were technically below me and things like that so it was very difficult at first to work out how out should approach someone. Obviously I'd had a job before and had a manager but to have a senior manager or to have someone below me or to have a supervisor or someone that works on the same level as me how do you treat all these people ... most of the job was can you do this you're not doing this right you need to change this we need to think of a new way to do this and it's so much easier where they're on your side and they at least know your name. I was terrified at first of going up to someone some 50-year-old guy that had been working there for 30 years and say 'please can you do this' and they just look at me and go 'no'". [Interview 8]

Thought Mathew's academic experience provided him with a foundation of engineering knowledge, he had little experience of applying in practice, nor had he engaged in the practice of directing others. Recognising his own lack of experience within the community, Mathew felt intimidated by the prospect of leading his colleagues. In particular, he found it challenging to adapt his approach to dealing with different colleagues to ensure his behaviour continued to be appropriate regardless of with whom he was interacting. When he discussed issues such as this, he spoke about feeling fear and worry. He was scared dealing with people in positions higher than him who he believed had the power to affect or even end his time on his placement, and but he was also concerned that when exercising his own power he might cause offence or be disregarded. He recognised that having worked at the company for many years, the employees he was expected to manage despite holding a position beneath his own, still demanded respect as experts within their own area, and as a newcomer, younger than most and inexperienced in his job role, Mathew worried that his reified stance as an employee with authority, might not be enough to prevent such a dismissal. When asked how he learned how best to handle situations such as these, Mathew explained that it had largely been a matter of observing and modelling the behaviour of others and gradually forming robust interpersonal relationships that could withstand such potentially precarious scenarios.

Mathew: "I guess just trial and error or kind of mimicking other people, so you'd see right we'd go to a meeting with our manager and people would like you'd all stand you all pay attention and he talks and it's all that and he sends an email. And the guys on the track...I think it's where experience and knowing the people so being there for a long time and knowing the people on the track helps because you could go up to someone and speak to them in a certain way and they wouldn't like it and it's knowing them... so I could go up to them and joke... and then you can't go to a senior manager and act like that so it is its knowing that boundary and how you deal with people". [Interview 8]

For Mathew it would seem mastering hierarchal relationships required dedicated time and experience, it required observations and increasingly complex interactions from which he could learn

what was wrong and what was right and this had to be adapted not only at the level of the position a person held but also more specifically his approach had to be adapted to each individual person, hence where time invested in getting to know each of his colleagues at a personal level bore fruit. With his superiors this meant learning when and when not to speak, and what was and was not appropriate to say. He needed to demonstrate an awareness of and accountability to the regime of competence as set out by those in a position to enforce it. With those he supervised he had to learn how to deliver feedback tactfully and how to form a rapport based on 'banter' and friendship, to counteract any potential for offence and attempt to balance some of the inequalities inherent in age and experience.

Theme Three Summary

Theme three has demonstrated the fundamentally social nature of learning on placement. To participate successfully in the workplace context requires of placement students not only technical competence but also the social competence necessary to forge and navigate complex professional relationships. Inherent in these relationships was the potential for both conflict and personal gain and students had to learn how to work these relationships to their own advantage or risk compromising their ability to better learn and progress in the course of their placement. This was something students were demonstrated to have to negotiate in the course of participation in practice, with the practices of the organisation having the potential to facilitate this process or hinder it. This process of navigating workplace relationships it was demonstrated, poses a significant challenge to students on placement and can have positive or negative implications for learning and identity, depending upon to what extent interactions are effectively handled.

Chapter six – Conclusions and Recommendations

In this final chapter I reflect upon my study aims and evaluate to what extent they have been met in the course of conducting this research project. This precedes an outline of the final conclusions of the study which have been formed from the main research findings. In the process of outlining these conclusions I highlight where further research may be of value and generate recommendations for future practice.

The aims of the current study were:

1. To apply a sociocultural theoretical framework to the understanding of placement learning, whilst contributing new theory driven knowledge to the work placement literature.
2. To explore students' subjective understandings of their placement experience, paying particular attention to the attendant meanings that they form in response to their experience.
3. To analyse the impact of sandwich placement participation on the negotiation of identity and to analyse where issues of identity impact upon the process of learning from the placement experience.
4. To explore the emergent practices which serve to enable or disable learning on placement.

Though I have tried to faithfully represent the experiences shared within that data and the meanings students formed from these experiences, inevitably certain experiences will have been overlooked as a consequence of my focus on issues of identity and practice. Collecting data through use of semi-structured interviews and a Facebook group spanning over 15 months, in addition, generated a breadth of rich and detailed insights into the placement experience, and in the process of condensing this data in the course of analysis again it has not been possible to explore fully the student experience. For this reason, I would argue it has only been possible to partially meet the study aims. In combining methods of analysis when interpreting the participants' data, I hoped to say something meaningful about what it means to learn on placement, but to additionally offer a more holistic insight into the individual placement experience. I hope in the process of constructing the narratives and analysing the data I have remained true to the participants' experiences as was my intention. I am aware that the choices I have made in the course of analysing my data reflect my ontological beliefs and that another researcher approaching this same data from a different perspective might develop a very different analysis and consequently form different practical recommendations. I do not however claim my interpretations to represent "facts". I simply hope to contribute to understandings of the sandwich placement experience and in particular I have sought to explore the potential mechanisms that contribute to the process of learning from this experience. It is also worth noting here that although

government policy has contributed to the progression of work placements within the UK, the recommendations stemming from the present study are directed toward academic and workplace practice as opposed to broader policy. As outlined previously the present study was informed by Communities of Practice theory from which it is argued that learning involves a process of becoming which requires increasing access to expert performances within a given community of practice. This theory guided the aims of the study which centre around uncovering the psychological mechanisms which contribute to the process of learning and identity development during placement participation and the practices that are subjectively experienced to enable or disable these changes. As such much of the analysis of the data involved a rich exploration of the subjective experience of academic and workplace practices and a theoretical analysis of how these practices influenced the learning process, it feels pertinent therefore to focus recommendations at the level of practice. Where I offer recommendations for future practice however, I offer them simply as ideas and suggestions, I do not wish to impose these recommendations upon employers and educators but merely provide suggestions to be taken only where they are viewed to have merit.

Limitations and Future Research

Recruiting the sample to participate in the current study relied upon students' volunteering to participate. One might argue that those students electing to dedicate time and effort to participating in research projects might differ in some ways to the rest of their cohort. It is notable that of the students who volunteered the majority felt that their placement was an overwhelmingly positive experience, and all were successful in their pursuit. Even those who found it very challenging completed the year successfully. Thus, future research might be of benefit to explore the placement experiences of those who are unsuccessful in completing their year in industry. This would offer an as yet unexplored insight in the placement learning literature. The current study focused only on students studying in the subjects of computing and engineering and embarking upon a sandwich model of work placement. Further research might be necessary to explore to what extent the findings outlined in this study relate to experience of placement participation in other subjects and based upon different models of placement. In addition, it was not within the parameters of the study to conduct situated observations of the students on placement. For this reason, to better understand the practices which enable and disable learning on placement, further research might take an ethnographic approach to the study of the sandwich placement learning. This would offer the opportunity to combine student perceptions with situated understandings of the social environment and enable a process of triangulation to produce more robust research findings.

Contribution to the Literature

Earlier it was argued that participation in practice fosters learning and identity development and underpinning this process is the negotiation of meaning. I therefore argued that to understand placement learning it is fundamental to understand how students make sense of and attribute meaning to their experiences of participation during placement. I also argued that the ability to participate and thus learn from practice on placement is not a given and it is thus also necessary to build upon our understanding of the practices which enable and disable placement learning. I argued further, that identity is a dynamic process which both influences and is influenced by participation and as such it is necessary to understand how identity contributes to, and shifts as a consequence of, placement participation. To do so required an approach to the exploration of placement participation underpinned by sociocultural notions of learning. Placement research however remains under-theorised with only a handful of studies exploring the placement experience based upon sociocultural theories, and as yet it would appear none have done so based upon the sandwich placement model. Eames and Bell (2003) suggested that a theorised understanding of how placement learning occurs and who contributes to this learning will assist placement stakeholders to structure their programmes in a manner that maximises the learning outcomes. I believe my research contributes to the limited amount of research that can be used to do so. I also suggested earlier that the structure of placements must influence the way students experience and thus learn from them. As such I would argue that this research may therefore offer findings which are more readily applicable for educators and placement providers dealing specifically with the provision of sandwich placements, than findings from theorised literature based upon placement models that differ in relation to their duration and the extent to which they are integrated into the undergraduate curriculum. Below I outline the main conclusions from the study which contribute new understandings of the mechanisms of placement learning.

Conclusions and Recommendations

From the analysis of student placement experiences, it has been possible to identify the mechanisms that underpin the identity shift that students undergo during their year on placement, which enable learning in the context of the workplace and then afterward in the final year of study. When embarking upon their placement, students must learn the valued practices of their new workplace community, which requires the space afforded by legitimate peripheral participation. In this struggle to develop competence in the context of the workplace the student must develop technical and interpersonal skills and forge an identity of professionalism. During this initial period of peripherality however students remain unfamiliar with their new social context and so draw upon knowledge and practice with which they have experienced past success in other contexts. Some of these practices will be

appropriate and some will not. Through a process of identifying practice to draw on, attempting to implement it in the new context and gauging to what extent it is successful the student can gradually build a picture of where the skills and knowledge developed through past learning applies to the community of practice that constitutes their workplace, where it must be adapted, or where entirely new knowledge must be formed. This is not an easy process and is often associated with feelings of fear, self-doubt and hesitation which is exacerbated where the student is left to try to gauge the appropriateness of their own actions and the perceptions and opinions of those around them, alone. Where students feel encouraged and supported, their self-efficacy to integrate knowledge and perform on placement improves, and as such students are better able to participate and negotiate an identity of competence. This progression toward a working identity in the course of placement, achieved through a gradual shift in thinking and behaviour in adapting to the challenges of the workplace, ultimately enables students to work more productively in the final year. By drawing upon the skills and resilience developed through placement participation students can build upon their trajectory of participation in academia. The ability and propensity to do so however varies as a function of individual agency and whether the academic environment is perceived to either to enable or disable the student to enact upon their shifting identity.

Based upon the above finding I would argue that the ability to assess the appropriateness of one's own actions in the context of the workplace is fundamental to progression. Eames and Bell (2005) suggest developing the skill of self-assessment may enhance lifelong learning. As such they recommend preparing students in advance for the differences in assessment between the two contexts. Whilst I would agree I would also argue that self-assessment is a skill which requires scaffolding like any other, there is after all a qualitative difference between knowing something must be done and knowing how to actually do it. For students who for so long have grown use to formal feedback in the form of regular formative and summative assessments the shift to a context where feedback is typically informal and infrequent is dramatic. The placement experience challenges students to adopt a new approach to gauging one's own progress, one which relies largely on a responsiveness to cues from the environment and an ongoing reflection on one's own performance, as opposed to reactive action taken in response to explicit feedback. Students have the potential to experience a long-term benefit from developing an ability to self-assess in this way, but an inability to do so toward the beginning of placement where this practice is unfamiliar, can hinder learning and negatively impact on performance which has negative implications for an emerging professional identity.

I propose therefore that during the course of their placements, students should be assisted to evaluate their own performance. I would however stipulate that the extent and frequency of this assistance

should decrease over the course of the year as the student builds competence in relation to the skill of self-assessment. Though formal reviews and informal feedback are an effective means by which students can come to understand if they are performing adequately, particularly at the beginning of placement where uncertainty is at its strongest, the simple transmission of feedback I would argue is not enough to scaffold the skill of self-assessment. To foster the development of a skill within the ZPD requires a challenge which pushes the student to the capacity of their potential. It cannot be so difficult that they cannot achieve it even with help, nor should it be unchallenging. Placement employers should therefore provide opportunities for students to assess their own performance with assistance, and these opportunities for self-review should become incrementally more challenging and less frequent throughout the year as competence increases. This would enable the student to continue in the process of ongoing development whilst simultaneously enabling them to learn how to apply this skill independently. Further research which explores the most effective means for scaffolding self-assessment in the context of placement, would be of value moving forward.

I have also argued above that the shift in identity that students experience in the course of their placement enables them to work more productively in the final year of study as they draw upon the skills and resilience developed through placement participation and apply them to address the challenges inherent in academic practice. Though students may not always be explicitly conscious of this process I would argue that the competence and pride they feel from succeeding on placements, motivates students to also actively seek some opportunities to forge connections between their experiences of work and academia. Whilst this process is dependent largely on individual agency, the students' self-efficacy to apply placement learning to academia is influenced by their perception of the facilitative or inhibitory nature of the academic environment. Where students perceive there to be greater opportunities to forge links between their placement experience and their studies, they are more willing and able to try to. As such, I would reiterate the recommendations of past research and suggest that it behoves the higher education institutions to offer opportunities for students to explicitly attempt to draw upon their placement learning during their final year(s) of academic study. Universities could in addition make consistent and targeted attempts to identify professional development opportunities external to the academic institution which they could signpost final year students toward. These opportunities should be relevant to the subject of study and should explicitly require participating students to actively draw upon the skills typically associated with placement learning. Alternatively, universities could offer workshops in which students are taught the skills required to identify professional development opportunities themselves, a skill that would no doubt be of long-term use. By recognising students' motivation to continue to build on their placement learning and encouraging and supporting this behaviour students' learning trajectories can only be

strengthened, but ultimately this requires that sandwich placements be theorised as an integrated aspect of undergraduate curriculum and not a stand-alone experience.

Inherent across the narratives and themes generated in this research project was the notion that the practices experienced in the workplace are necessarily different to those experienced in academia. The finding that the workplace and academic contexts are very different however is not new, it is an observation that appears frequently in the work placement literature, the impact this has on the process of learning on placement however is less well known. In the present study, the value ascribed to collaborative learning was interpreted to be a key differentiator between the two contexts. Turner (2012) argues that higher education requires students to manage their own learning, she suggests “the notion of independence in thought and action is therefore, unsurprisingly, a highly valued practice within the academic community” (Turner, 2012, p106). Yet in the placement workplace, collaboration and support is an inherent part of day to day practice. Crebert et al (2004) position this as a difference in cultures between the two contexts where in academia personal achievement, ambition, goals and rewards are valued in contrast to the placement workplace where team achievement, goals and results are vital to the success of the organisation as a whole. Crebert et al (2004) found from graduates’ survey responses that generic skills development on placement was largely attributed to the collaborative learning they experienced. Due to the nature of the data however it is not possible to ascertain why that was. In the present study, the role of collaboration in learning was demonstrated to relate to the potential to form effective learning relationships through the mutual engagement afforded by participation in community practices. Learning on placement is scaffolded through a range of techniques both formal and informal. This can be a consequence of purposive training or casual day to day support during which the student is assisted to pass through the zone of proximal development for the skill or task to be learned. Collaboration may even simply take the form of opportunities to work alongside fellow placement community members and observe them work, during which time the student is exposed to paradigmatic trajectories from which to negotiate their own trajectory and identify the valued practices of the community. Learning through collaborative interaction such as this during the course of placement requires the formation of complex relationships of the likes placement students have not necessarily experienced before. This leads to the final study finding which concerns the nature of the social dynamics on placement and the skills required to navigate them.

To succeed on placement requires of students an ability to navigate complex workplace relationships inherent within which are dynamics of power. Through interpersonal relationships students may gain access to opportunities and information that would otherwise be unavailable. Through learning relationships students can gain the support and feedback required to identify and perform the valued

practices of the community. But to gain this support throughout the course of the year requires of students the self-awareness to recognise where help is required and the confidence to actively seek it, where it is not made readily available. Relatedly, students must also be able to identify who to turn to for what. Further, to form the learning relationships from which to gain support requires of students an ability to form interpersonal relationships, as it from interpersonal relationships that learning relationships stem (Tobbell and O'Donnell, 2013b). Though the present study was able to identify the implications of interpersonal relationships for the process of learning and progression on placement, further research is needed to understand the processes that contributes to the process of their formation in a placement setting. Though this was not the focus of the present study, the importance of mutual respect for both interpersonal and learning relationships was apparent. In the context of placement this relates not only to personal respect, associated with common courtesy, but also a professional respect where the experience and expertise of others is recognised and acknowledged. Based upon the evidence to suggest interpersonal relationships are of such importance for learning on placement it is no surprise that opportunities to network additionally contribute to the ability to build competence in the context of placement. Through the process of networking, placement students can expand their potential to form interpersonal relationships and build upon their social capital, to be drawn upon when negotiating access to practice and resources in the workplace and beyond. Work placement relationships in their complexity however, are not exclusively constructive. Where power relations inherent in practice cause tensions, students must also negotiate ways to deal with the tensions and conflicts that may arise, to protect their ability to continue participating in practice and to continue in their development of an identity of professional competence.

In anticipation of placement participation therefore students must be empowered to develop the confidence and skills required to successfully negotiate relationships from the beginning of their placement so that they may be better equipped to deal with the social situations they will face in the workplace. This begs the question as to how universities can facilitate students to develop the skills of social competence before entering the workplace. Caple and Bogle (2013) suggest that the implementation of tasks requiring teamwork within the academic environment has been demonstrated to foster development in relation to the ability to collaborate, in addition to enhancing interpersonal and communication skills. However, Dunne (2000) argues that academics pay little attention to the processes, roles and outcomes underpinning successful teamwork. I would therefore propose that in anticipation of the social nature of placement learning, undergraduates should be offered opportunities to work on tasks which require collaboration and teamwork, but where these opportunities are assessed, the process of team work and not just its outcome, should be evaluated.

This could be facilitated through use of peer review, the feedback from which could be reiterated to the student so that they might adapt and progress in future collaborative endeavours.

To further assist students in navigating the social dynamics of the workplace also requires adaptations to practice on the behalf of the placement provider. Placement providers should, foster an atmosphere conducive to learning, whereby students are made to feel supported and are given the confidence to approach their colleagues for help, armed with the knowledge that they will not be turned away or judged. The provision of a 'buddy system' in the early weeks of placement might be of value for students who are new to the workplace. The ability to build an awareness of the physical environment of the workplace in addition to identifying the roles and responsibilities of one's colleagues, is a necessary and important aspect of practice, which ultimately develops through ongoing participation. But the initial stages of placement where everyone and everything is unfamiliar can be intimidating and overwhelming. Assigning a specific colleague to be tasked with the role of signposting and support, might thus assist incoming students to more easily acquaint themselves with their workplace and colleagues and consequently more successfully contribute to practice from an earlier stage in their placement journey. The efficacy of the implementation of a buddy system in the context of placement learning would however require further study.

In addition, placement providers should be made aware of the benefits to be accrued by students through the process of networking so that they might facilitate this process wherever possible. Gibson, Hardy and Buckley (2013) suggest that the decisions and policies organisations implement will influence the extent and frequency of networking amongst their employees. They suggest for instance that where an organisation's culture is collaborative and open, networking will be more likely facilitated than in a workplace where employees are competitive and mistrustful. One way in which they suggest this may be achieved is with an open-door policy where employees feel safe to approach one another, ask questions and gain feedback. Where students whilst on placement gain opportunities to participate in additional activities beyond the norm of their day to day work, such as through recreational work outings, voluntary projects or opportunities to visit other areas of their company, they are better able to network with a wider range of colleagues. Though arranging opportunities such as this might require a greater level of work on the part of the placement provider, they might ultimately find it to work to their own benefit as networking has been found to have positive implications for job performance where employees gain the latitude and resources to attempt more ambitious projects (Thompson, 2005). Where students are immersed in a culture of networking they are able to build upon their interpersonal skills and expand their social network while their professional development is still in its infancy. Placement providers should therefore be made aware of the value of providing opportunities such as these, while placement students should be encouraged

to seek out and capitalise on these opportunities wherever possible in the course of their placement year.

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An Exploration of Students' Experiences of Placement in Computing and Engineering: a Sociocultural Analysis of Learning.

Kirsty Snape

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Appendices

Appendix 1 - Sample of Facebook Group Topics

- Getting to know each other
 - What subject do you study?
 - What was your motivation in choosing the course?
 - What made you choose the career you're currently in?
 - What are your ambitions for the future?
 - What are you doing to achieve these ambitions?
- Experience of university
 - Relationships
 - Attitude to studies
 - Enjoyment
 - Factors that influenced academic performance?
 - Motivations
- Pre-placement work experiences
- Pre-placement perceptions, expectations, preparations
 - Perceptions of employability
 - Expectations of placement
 - Placement preparations
- Choice of placement
- Transition to placement
- Placement relationships
- Job role
- Training
- Workplace atmosphere
- Comfort, enjoyment and confidence
- Returning to university

Appendix 2 – Interview Schedule

Background

- Could you tell me a little about where you currently are in your education or career?
- What is that made you choose Computing/Engineering?
- What are you wanting to gain from your computing/engineering course?

Experience of University pre-placement vs post-placement

- How did you find university before you went on placement?
- What aspects of university did you enjoy before you went on placement?
- Were there any aspects of university you disliked pre-placement?
- How do you feel you performed academically in the first couple of years?
- What aspects of your course did you find most challenging?
- What sort of lessons did you prefer throughout university? Why was that?
- What would you have changed about those first 2 years if you could?
- What did you find most valuable about your first 2 years of university?
- Did university prepare you for your placement?

Application

- Did you have any criteria in choosing placements to apply for?
- How many placements did you apply for?

Interviews

- How many interviews did you go for?
- What made you choose the placement you eventually selected?

Expectations of placement

- What were your hopes for your placement?

Preparation for placement

- Did you do anything in preparation for your placement?
- Did you seek any advice?
- Did you feel prepared?
- In hindsight is there anything you wish you'd have done to better prepare yourself?

Placement Transition

- What were the first few weeks at placement like?
- What kind of introduction did you get to the company/employees/place?
- Did you receive any training?
- What were your roles and responsibilities in the beginning?
- Do you feel the work you were given in the beginning was suited to your level of skill/experience at that point?
- What if anything made the transition easier? What was the hardest part?
- Is there anything you would have changed about those first few weeks of placement?

Placement

- Can you describe your workplace for me? Atmosphere, size etc.
- What was your relationship like with your colleagues?
- How did your role or responsibilities change over the year?
- To what extent were you happy with the amount of work given/the nature of the work given?
- Did you make any efforts to influence your own learning on placement? E.g. requests for additional work/certain kinds of work?
- How did the tools e.g. software you use on placement differ to those at university?
- What aspects of placement did you most enjoy?
- What aspects of placement did you find you least enjoyed?
- What were the most valuable skills and abilities you felt you gained whilst on placement?
- How applicable did you find your prior knowledge from your degree was to your placement?
- What motivated you on your placement?
- Are you happy with your performance on placement?
- Is there anything you think you could have done differently?
- Is there anything you would have changed about the placement experience?
- Would you recommend to others that they take a placement year if this is an option?
- What advice would you give someone thinking of taking a placement year?

Post-Placement

- Do you think the way you experience university has changed since you returned from placement?
- Do you think you changed at all as person since participating in a placement?
- How has participating in a placement made you feel about your intended career?
- Can you apply what you learned on placement to your studies?

Appendix 3 – Ethics Submission

THE UNIVERSITY OF HUDDERSFIELD

School of Human and Health Sciences – School Research Ethics Panel

OUTLINE OF PROPOSAL

Please complete and return via email to:

Kirsty Thomson SREP Administrator: hhs_srep@hud.ac.uk

Name of applicant: Kirsty Snape

Title of study: An exploration of undergraduate engineering students' participation in work placement.

Department: Human and Health Sciences

Date sent: 19/02/2015

Issue	Please provide sufficient detail for SREP to assess strategies used to address ethical issues in the research proposal
Researcher(s) details	Kirsty Snape – PHD research student (Human and Health Sciences)
Supervisor details	Main Supervisor – Dr Jane Tobbell Supervisor – Dr Lynda Turner
Aim / objectives	<p>The objective of the study is to evaluate undergraduate engineering student's work placement experiences using sociocultural theory. I also aim to look at perceptions of placements from the perspective of engineering staff.</p> <ul style="list-style-type: none">❖ Aim 1 – To investigate the practices within the workplace setting which enable and disable personal, academic and professional development.❖ Aim 2 – To investigate how students perceive placements to aid in their development of key competences.❖ Aim 3 – To investigate student's subjective notions of their employability shift post placement.❖ Aim 4 – To investigate how work placements are understood to contribute to the university from the perspective of members of the engineering teaching staff.❖ Aim 5 – To use sociocultural theory to understand placement participation.

Brief overview of research methodology	See table of methodology below:	
Data Collection Method	Procedure	Ethical Issues
1. Literature Review	<ul style="list-style-type: none"> • Comprehensive review of WIL literature. • Comprehensive review of UK engineering sandwich placement literature • Review of theoretical literature in the field of developmental and educational psychology. 	<ul style="list-style-type: none"> • Plagiarism – I have a strong awareness of the university policy surrounding plagiarism and understand the necessity of referencing the work of others, and how to do so using the APA referencing system.
2. Document analysis	<ul style="list-style-type: none"> • Analysis of all relevant documentation provided to students in their work placement module. • Analysis of all relevant documentation provided to students in their final study year. 	n/a
3. Student interviews	<ul style="list-style-type: none"> • pre-placement 2nd year engineering undergraduates will be questioned using semi-structured interviews. • Students will be asked to reflect on their university story so far. • Students will be asked questions pertaining to their subjective views of their academic, personal and employability development thus far. • Students will be asked questions based on a competency framework developed from the document analysis. 	<ul style="list-style-type: none"> • Student interviews will occur in the university for both student and researcher safety as this is a familiar and public place for all involved, this also ensures staff will be close by if for any reason assistance is needed. • If students appear distressed during the interview I will end the interview immediately, participants will be made aware beforehand they may also end the interview whenever they want. • Similarly I will allow students to refuse to answer any question they want. • If students reveal they are distressed in response to the interviews or are generally in need of psychological support I will direct them to the university counselling service.

		<ul style="list-style-type: none"> • If students reveal information which suggests they are struggling academically I will direct them to the academic skills tutors, and to the school of computing and engineering placement unit. • I will inform all participants they have the right to withdraw their data from the interviews up to the point of analysis. • I will type up hand written notes as early as possible and shred them after. I will keep electronic data in password protected formats.
4. Social media discussions	<ul style="list-style-type: none"> • The previously interviewed participants plus additional participants, at the same point in their education will be recruited for the social media group. • The participants will be invited into the private social media group as their placements commence. • The group will be encouraged to discuss their placement experiences with their peers. • It may also be used as a platform to share opinions or ask for advice or ask questions of one another. • I will set regular discussion tasks to begin group conversations and gather data based on my study aims. 	<ul style="list-style-type: none"> • As the students are discussing their personal experiences I will ensure I make the group private so no other social media users will see what is discussed. • Students are likely to use pre-existing social media profiles containing personal information and pictures which will reduce their anonymity. I will recommend participants make "pseudo-profiles" for improved anonymity, regardless of if they choose to do this however I will anonymise names in my write up, and instead I will assign each student a number. • Social media conversations will involve student interaction. There may be a slight risk of participants being verbally abusive with one another. I will tackle this proactively by stating that this behaviour will not be tolerated. I will explain that students must treat each other with respect. Reactively I will remove students from the group if they do not follow the conduct expected of them. • I will explain on the information sheet, verbally and as part of the rules on the group that they may not discuss the names of their

		employers and colleagues or those of others.
5. Staff interviews	<ul style="list-style-type: none"> • I will carry out semi-structured interviews with engineering staff. • The size of the staff sample will be dependent upon the number of staff in the department available for interview. As it stands I intend to interview 5 staff members. • The interviews will focus on staff perceptions of placement participation and its impact on students and the university. 	<ul style="list-style-type: none"> • As the staff being interviewed work for the university they may be reluctant to discuss any negative opinions of the placement course, however I will explain that I have no agenda in undertaking this research and aim to explore their perceptions whether good or bad. I will explain that they are welcome to refuse to answer any question they want. And I will explain that they will remain anonymous. • I will inform all participants they have the right to withdraw their data from the interviews up to the point of analysis. • I will type up hand written notes as early as possible and shred them after. I will keep electronic data in password protected formats.
6. Student interviews	<ul style="list-style-type: none"> • Following placement completion I intend to do further interviews preferably with the students previously interviewed (If some of these students are unable to be re-interviewed I will select others from the remaining participants participating in the social media group). • Questions pertaining to current academic, personal and employability development will be asked so pre and post placement comparisons can be formed. • Students will be asked to reflect upon their contextual and social factors and the practices involved in placement participation. • Participants will be asked to share their opinion on their experience and will be invited to form comparisons between their placement experience and other academic or extra-curricular activities. 	<ul style="list-style-type: none"> • As with the earlier interviews I expect the same ethical issues could occur and I would approach them as discussed above. • If additional issues come up in conversation which have not been brought up in the earlier stages I will refer the student to the relevant area e.g. student counselling, academic support, placement unit etc. • I will type up hand written notes as early as possible and shred them after. I will keep electronic data in password protected formats.

7. Analysis	<ul style="list-style-type: none"> Upon transcribing my data I plan to carry out a theoretical thematic analysis based on a sociocultural ontology. 	<ul style="list-style-type: none"> Whilst writing up my analysis I will be sure to keep the name of places, people and institutions anonymous.
Study Start & End Date	Start Date: Oct 2014 End Date: September 2017	
Permissions for study	I will need permission from my participants for their participation in the study and to use their data, which I will gain at the point of recruitment, both verbally and in writing through use of a consent form. I need permission from the engineering department to access students. I am in the process of obtaining this letter and will forward this on in due course.	
Access to participants	As above I will need permission from the engineering department to gain access to engineering students to participate in my study.	
Confidentiality	I will store my electronic data in password protected files. I will keep my Dictaphone recordings on my person whilst the recordings remain on there and transfer them onto a password protected computer in a password protected file at the first opportunity, I will then delete the recordings from the Dictaphone. If I create any hard copies of the data I will keep them in a locked drawer which only I will be able to access. Where possible I will type up hand written information and shred the documents as soon as possible.	
Anonymity	As my study will require participants to use social media to interact I am aware there is a likelihood of students electing to use pre-existing accounts which contain their personal information. For this reason I will encourage students to create new profiles with pseudonyms which don't include personal details, images etc. If students do elect to use existing profiles I will keep their identity anonymous as I write up my research. The name and specific location of the university will not be used, nor will the name of any institutions such as the placement workplaces. The students and staff will be told they may not name their employers or colleagues by name, however if they do their posts will be edited and the names will be changed in the writing up of the data. Throughout the study I will refer to my participants through use of numbers instead of names.	
Data Storage	As above, hard copies of the data will be stored in a locked drawer and electronic copies will be stored on a password protected personal computer and my password protected university account. The data will be stored for 5 years after study completion and the participants will be made aware of this verbally and in the consent form I will provide.	
Psychological support for participants	Whilst the study subject is not one I would consider as obviously sensitive I will refer students to the university counselling service if during the interview they become distressed or if they reveal information which suggests they are in need of	

	psychological support. If they reveal they are struggling academically I will refer participants to the academic skills tutor and if they have any issues in relation to the placement I will refer them to the school of computing and engineering placement unit.
Researcher safety / support (attach complete University Risk Analysis and Management form)	See risk analysis and management form.
Identify any potential conflicts of interest	I don't believe there are any foreseeable conflicts of interest.
Please supply copies of all relevant supporting documentation electronically. If this is not available electronically, please provide explanation and supply hard copy	
Information sheet	Information sheets attached for: <ul style="list-style-type: none"> - Students - Staff
Consent form	Consent form attached for <ul style="list-style-type: none"> - Students - Staff
Letters	Permission from school of engineering is being pursued and will follow
Questionnaire	n/a
Interview guide	Attached for; <p>Pre-placement student interviews</p> <p>Post-placement student interviews</p> <p>Staff interviews.</p> <p>Social media discussion tasks</p>
Dissemination of results	The research is part of my PHD study so the data will be presented in my thesis. The research may be presented at conferences and published in academic journals.
Other issues	n/a
Where application is to be made to NHS Research Ethics Committee / External Agencies	n/a

All documentation has been read by supervisor (where applicable)	All documentation has been read by my supervisor Jane Tobbell.
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All documentation must be submitted to the SREP administrator. All proposals will be reviewed by two members of SREP.

If you have any queries relating to the completion of this form or any other queries relating to SREP's consideration of this proposal, please contact the SREP administrator (Kirsty Thomson) in the first instance – hhs_srep@hud.ac.uk

Appendix 4 – interview information sheet

Research Participation Information Sheet

I invite you to participate in this research project considering identity development and learning in response to placement participation. Before committing to this project you should first understand its purpose and what the research will involve. This sheet will provide you with further information, please read it thoroughly and feel free to discuss this further with me if you require more information or clarification.

What is this study about?

The purpose of this study is to explore and understand learning and identity development in response to participation in a Computing or Engineering sandwich placement year. In addition an array of related topics will be explored; included in this is an exploration of students' pre and post-placement learning experiences including academic and non-academic learning opportunities, expectations of placements, educational transitions etc.

Why I have been approached?

You have been asked to participate in this study as you are a student of Computing or Engineering at *removed for anonymity*. In addition you have previously participated in a placement.

Do I have to take part?

You are not obliged to take part in this study, the decision to participate is completely up to you. You are also free to withdraw from the study at any time, and you are not required to provide a reason, choosing to withdraw will not affect you. Your data may be withdrawn up until the point of analysis on the 1st November 2016.

What will I need to do?

The data collection element of this research is scheduled to begin around August 2015 and will continue until November 2016. You will be asked to attend one interview. You are under no obligation to accept this invitation. The interviews will take place at the university with myself and are intended to last no longer than one hour. The focus of the interview will include your university experience and your perceptions of your academic development and employability, you will be invited to reflect on the placement experience and compare it with other learning opportunities you have experienced. Interviews will be audio recorded and transcribed.

Will my identity be disclosed?

The information you share may be discussed as I write up my research but this will be anonymised in a manner that does not disclose your identity. In relation to anonymity and confidentiality it is also important to note that when participating in this research you should please not name your placement provider nor should you name your colleagues or discuss the employer or colleagues of others by name. However if you do name a colleague or employer they too will be anonymised.

What will happen to the information?

Any information you provide whilst participating in this research will be kept secure and anonymised. All written documents will be typed up as early as possible and stored on password protected computers. Hand written information will then be shredded. Your data will be stored for 5 years as per university regulations. I anticipate that in the future my research may potentially be presented at conferences and/or published in an academic journal. Again you will continue to remain anonymous.

Who can I contact for further information?

If you require any further information about the research, please contact me on:

Name: Kirsty Snape

E-mail:

Telephone:

If you have not done so already could you now please complete a consent form. I would just like to take this opportunity to thank you for your interest in this project and to thank you for taking the time to familiarise yourself with this information sheet. Your participation is greatly appreciated.

Thank you,

Kirsty.

Appendix 5 – Facebook Group Information Sheet

I invite you to participate in this research project considering identity development and learning in response to placement participation. Before committing to this project you should first understand its purpose and what the research will involve. This sheet will provide you with further information, please read it thoroughly and feel free to discuss this further with me if you require more information or clarification.

What is this study about?

The purpose of this study is to explore and understand learning and identity development in response to participation in a Computing or Engineering sandwich placement year. In addition an array of related topics will be explored; included in this is an exploration of students' pre and post-placement learning experiences including academic and non-academic learning opportunities, expectations of placements, educational transitions etc.

Why I have been approached?

You have been asked to participate in this study as you currently are a student of Computing or Engineering at ***removed for anonymity***. In addition you are about to/currently participating in a placement.

Do I have to take part?

You are not obliged to take part in this study, the decision to participate is completely up to you. You are also free to withdraw from the study at any time, and you are not required to provide a reason, choosing to withdraw will not affect you. Your data may be withdrawn up until the point of analysis on the 1st November 2016.

What will I need to do?

The data collection element of this research is scheduled to begin around August 2015 and will continue until November 2016. If you choose to participate in this research you will be asked to join a closed social media group with other computing and engineering students. You may join using an existing account, though if you would like to participate anonymously you will need to create a new account with a pseudonym. Regardless of whether or not your account is pre-existing or anonymous you will remain anonymous within the research.

Group questions will be set on the group on a relatively regular basis (it is estimated they will be posted every 1-2 weeks). I will post the questions to the group to formulate group discussions in key areas, your responses to the questions can be in as much or as little depth as you like. You are not obliged to answer a question/join in with a discussion task if you do not wish to do so. The questions will relate to various elements of placement and university experiences. As a member of this group you are more than welcome to post your own questions/start your own discussions to converse with other group members about your university or placement experiences, the group may be used as a platform to give and receive placement related advice. I'm hoping the group will provide a useful network of support for

yourself and your peers. Throughout the study you will need to ensure you are respectful to the other group members, inappropriate behaviour will result in removal from the group.

Will my identity be disclosed?

The information you share may be discussed as I write up my research but this will be anonymised in a manner that does not disclose your identity. As discussed above for anonymity in the social media group an anonymous profile would need to be created at your own discretion. In relation to anonymity and confidentiality it is also important to note that when participating in this research you should please not name your placement provider in your interview or on the social media group, similarly you should not name your colleagues or discuss the employer or colleagues of others by name.

What will happen to the information?

Any information you provide whilst participating in this research will be kept secure and anonymised. All written documents will be typed up as early as possible and stored as password protected files on password protected computers. Hand written information will then be shredded. Your data will be stored for 5 years as per university requirements. I anticipate that in the future my research may potentially be presented at conferences and/or published in an academic journal.

Who can I contact for further information?

If you require any further information about the research, please contact me on:

Name: Kirsty Snape

E-mail:

Telephone:

If you have not done so already could you now please fill in a consent form, which can be found in the files section of the group. I would just like to take this opportunity to thank you for your interest in this project and to thank you for taking the time to familiarise yourself with this information sheet. Your participation is greatly appreciated.

Thank you,

Kirsty.

Appendix 6 – Interview Consent Form

Thank you for your interest in participating in this PHD research study. After reading the information sheet please complete this consent form. Upon completing the form please email it to Kirsty.Snape@hud.ac.uk. If there is anything you wish to clarify or for any further details please don't hesitate to ask using the contact details provided below. Your participation in this research is completely voluntary, you are in no way obliged to participate. You may withdraw from the study at any time and your data may be withdrawn up until the point of analysis on the 1st November 2016. Please select either yes or no to the following questions by making the word bold or circle if submitting a hard copy;

I have been fully informed of the nature and purpose of this research	Yes/No
I consent to participating in an interview and I am aware this is not obligatory	Yes/No
I understand I may end the interview at any point and may refuse to answer any of the questions asked.	Yes/No
I understand I may withdraw my research data up until the point of analysis (1 st November 2016).	Yes/No
I give permission for my words to be quoted (by use of pseudonym)	Yes/No
I understand that the information collected will be kept in secure conditions for a period of five years at the University of Huddersfield	Yes/No
I understand that no person other than the researcher/s and facilitator/s will have access to the raw data.	Yes/No
I understand that the information I provide may be presented in conferences and journal articles, but I will remain anonymous.	Yes/No
I understand that my identity will be protected by the use of pseudonym in the report and that no written information that could lead to my being identified will be included in any report.	Yes/No

If you are satisfied that you understand the information and are happy to take part in this project please write your name and the date in the box below.

Participant Full Name: _____	Researcher Full Name: _____
Date: _____	Date: _____

Appendix 7 – Facebook Group Consent Form

After reading the information sheet and duty of care document please read and complete this consent form. Upon completing the form please email it to Kirsty.Snape@hud.ac.uk. If there is anything you wish to clarify or for any further details please don't hesitate to ask using the contact details provided below. Your participation in this research is completely voluntary, you are in no way obliged to participate. You may withdraw from the study at any time and your data may be withdrawn up until the point of analysis on the 1st November 2016. Please select either yes or no to the following questions by turning the word bold;

I have been fully informed of the nature and purpose of this research **Yes/ No**

I consent to participating in the social media group element of this research,
and I am aware it is not obligatory **Yes/ No**

I understand that I have the right to withdraw from the research at any time
without giving any reason **Yes/ No**

I understand I may withdraw my research data up until the point of analysis
(1st November 2016). **Yes/ No**

I give permission for my words to be quoted (by use of pseudonym) **Yes/ No**

I understand that the information collected will be kept in secure conditions
for a period of five years at the University of Huddersfield **Yes/ No**

I understand that no person other than the researcher/s and facilitator/s will
have access to the raw data. **Yes/ No**

I understand that the information I provide may be presented in conferences
and journal articles, but I will remain anonymous. **Yes/ No**

I understand that my identity will be protected by the use of pseudonym in the report and that no written information that could lead to my being identified will be included in any report.

Yes/ No

I understand that when participating in the social media group I must be respectful to the other members, and inappropriate conduct will result in my removal from the group.

Yes/ No

I understand that I must not name people or institutions whilst participating in the social media group. This includes my employer and colleagues and those of others.

Yes/ No

I accept the protocols outlined in the Duty of Care and Group Protocols document.

Yes/ No

If you are satisfied that you understand the information and are happy to take part in this project please write your name and the date in the box below.

Participant Full Name: _____	Researcher Full Name: _____
Date: _____	Date: _____

(one copy to be retained by Participant / one copy to be retained by Researcher)

Duty of Care and Group Protocols

The university has a duty of care to protect their students; as a member of this university I too have a responsibility to uphold this duty whilst you participate in my study. For this reason I must have procedures in place in the event that I become concerned for your well-being.

If I become concerned for your well-being I will speak to you privately and attempt to refer you to an appropriate source of help such as the academic skills tutor, university counselling service or placement unit. I will not reveal anything you tell me which may identify you without your consent except in any instance where I feel you or others may be at significant risk.

Whilst participating in the group I would request that each of you please be respectful to your fellow group members. Please also refrain from using any offensive language. Any behaviour deemed inappropriate or disrespectful may result in your removal from the group.

Thank you for taking the time to read this information, and thank you again for your interest in participating in the research, I hope you find the experience beneficial and enjoyable. In participating in this study you are making a valuable contribution to the literature in the area of computing and engineering education and you are helping me to complete my PhD for which I am extremely grateful.

Appendix 9 – Phil Transcript

KS: So basically, I'm going to try to follow as much of a pattern as I can, so it makes a logical sense, but I may end up flying back erm as I go along.

Phil: Fair enough.

KS: So, the first thing I really wanted to focus on was to talk about placement and then maybe if we've got time we'll go back to talking about uni and stuff... so I think it makes sense to start off by saying when did you start your placement?

Phil: That's a good question, it would have been my erm, third year undergraduate, erm and I, that would make it I think 2011 I think.

KS: Right so not that long ago really was it?

Phil: Relatively, I'm just thinking if that's accurate, no it must be before that sorry 2009, sorry my fault 'cause I've been, just finished my PHD so that's four years from now and then so it would have been 2009 when I started *for placement company name*.

KS: Right yeah, and then what is it that you're doing now?

Phil: I just finished my PHD which is engineering, surface metrology for *company name* for their gas turbines.

KS: Oki doke! So how did you prepare for your placement, if at all, did you do any preparation?

Phil: Erm well I think for, preparation I think for me, erm I have a, something of an unorthodox past if you like, in terms of that's why, part of the reason I was late to completing my undergraduate degree really, erm so preparation for me was really about, erm confidence as much as anything, being back in a workplace, 'cause I'd been unwell, I've had a I've got a chronic mental health condition, so I'd been unwell for a long time and going back to my undergraduate degree was a kind of a step back into the real world if you like. For me the biggest issue about, going back, going to placement was about being prepared to sort of be in the work environment again, 'cause even though I'd been at, I'd been in Uni for two years prior to that, that's still a very artificial environment really. So that was, it was quite a difficult time for me, finding a placement and accepting that I would have to be kind of earning a wage kind of if you like 'cause it was kind of they do, well engineering, we do get a reasonable amount of pay whilst we're on our placement so there is a certain amount of expectation on us.

KS: Yeah, a bit more pressure?

Phil: Yeah, so I don't know if you've got anything specific in mind when you say preparation, erm I can't think of outside of that that I did anything particularly, erm yeah. I think I will have looked at some of the background for *placement company name* I worked in *location name* for *placement company name* looking at their glorious record for *public scandal* and things like that but that's a long story, not such a good record but erm...

KS: So, did you seek any kind of advice or help from anyone or?

Phil: Yeah, I think, erm certainly the, our placement team, yeah our placement unit in engineering are really excellent, I think I don't know how they fair against other placements units within the uni but they're certainly, I think they're pretty good nationally, and have had prizes for that, yeah and I think they were pretty good just at realising, I was really quite anxious about it, erm trying to move on. I felt like moving into a degree was difficult and then moving on to moving on to work was quite hard, even though it was only like pretend work if you like, and that's probably why I did it, I think most mature students might not perhaps do a placement they might just want to move straight on

and not maybe do that but I needed to get an idea about how I was going to be in that environment, and how easy it was going to be for me.

KS: So that you were prepared for after university?

Phil: Yeah, I think so, yeah.

KS: And then what was your expectation of placement?

Phil: Erm it's a good question really, I took it on in the context that, it was partly, it was partly because I wanted to see what I was like in the work environment but also I wanted to try and get an idea of the way I might be in a big company because there's always erm I've had friends who've worked for multinationals erm and there's always that question about whether a person might be better suited to a large corporate environment, or a maybe a smaller erm sort of one man band kind of outfit, if you know what I mean, a smaller commercial environment so really it's quite one of my expectations was finding out about what it might be like to work within a, be fairly anonymous perhaps within a large corporate environment. And also, maybe just to like play out what it might be like to play that perhaps kind of corporate role if you know what I mean you know, and when I say corporate I don't mean being an executive or anything but being part of that environment where your kind of competitive with your, more competitive with your peers and your looking to be a career oriented person and so forth. So, I think that was one of my expectations from it that I was going to be able to erm, experience that and other associated work environment things and see what my, see if I suited it or not really

KS: And how did you find it, did it meet your expectations or?

Phil: Certainly, I think some of it was really kind of pretty much what I expected, being kind of like I say being fairly anonymous and being part of a large, a large machine, and I have to say I didn't feel like I fitted in very well erm and I didn't find the experience of erm being maybe trying to be part of that corporate thing very well. It's it was as much exploring my own kind of erm, I've never really felt that was something that I would do but my life had changed such a lot that I didn't really, I didn't really know what my life was going to be like or what I wanted from it. So it was very much about looking at the experience and looking at the options but now it, I'm a fairly shall we say, outside of whether I would class myself as like I say it was a mental health issue, outside of that I think I'm probably a fairly unusual chap anyway, erm idiosyncratic shall we say erm and I think that that environment where everybody was kind of expected to kind of push the company line and make sure that they behave, I mean it's all in these big companies it's all about behaviours I don't know if you've got any experience of this? Where everybody's expected to express certain behaviours, doing making sure that all health and safety requirements are covered but in a very open and behaving in the right way and also that extends into kind of erm the corporate behaving in the corporate way as well in terms of backing the sort of policy and the general plans for the company and so forth and I never really I don't know that's not really something that fitted me terribly well, I'm a little bit too erm variable I think might be a good way to kind of put it to be able to perhaps fit with a consistent kind of suited, glossy exterior which follows the company line you know. So, I think my experience of it really wasn't that great really on the whole. I did have some positives from it, but I think I learned that that's probably not well suited to me, I need something an environment perhaps that's a little bit more flexible and a little bit less kind of erm, perhaps not fewer expectations but perhaps different expectations.

KS: What was it like being a placement student in a place like that did you feel, were you aware that people treated you like a placement student or was it not like that?

Phil: Yeah, very tricky really because obviously being, how old would I have been? Certainly in my forties by this point erm yeah I'd have been early forties I guess its erm, it's a tricky kind of role to play almost it would have been easier had I been the same age as my peers at undergraduate level

erm so I guess in some ways I was some people treated me erm sort of appropriately to the role I was in but then other people, other people didn't because I was treated, because you don't always have a clear within that structure of a large company you don't always have a clear idea about what the role or position people have when you encounter people in a erm not, in a way that's clear about who necessarily is in a formal superior role if you like so it's and also you don't necessarily kind of introduce yourself all the time as 'hi I'm a placement student' or whatever erm so you might be more associated with a department or a role or whatever erm and also because obviously because of my age and my expectations I kind of to some extent drove my own placement if you like so I did get treated probably by staff. Senior staff who kind of appreciated what the overall picture was pretty much what you'd expect to be how you'd expect to be treated for a placement student, fairly a fairly long distance and erm you expect to be, with all the formalities of training from various people, then these things get neglected because people don't rate placement students particularly highly on their priority list so you get that kind of thing, the dismissive kind of way.

KS: Cause' you're there to fill a place?

Phil: Yeah and I don't think that's anything other than perhaps erm how anybody, anybody in a busy work environment might perhaps treat somebody who is after all fairly low down the scale of things erm so I didn't sort of, obviously it affects personal relationships when people clearly neglecting their responsibilities towards you if you like, if they have if they should have maybe a training role for you and they didn't fulfil that then that sort of thing was quite evident.

KS: So, did you find that a lot did you find you had many that didn't really...

Phil: Yeah I think there were people who, who were kind of erm who operate, the sorts of types of people who are very clear about their sort of what their list of priorities is and the top the top half of the list gets dealt with and the bottom half doesn't and if you're in the bottom half then you don't get dealt with if you know what I mean, so there are people who operate like that erm understandably you know, it's a, it's a busy life isn't it, but when you find yourself consistently in the bottom half of the list with somebody then that that does yes I did find that and I think I think maybe erm my expectations were somewhat higher than the average, the typical placement student, because of my age I guess perhaps. I perhaps felt that I perhaps justified a bit more respect than that perhaps erm, so I didn't necessarily feel like I would have a good relationship with some people on that basis but erm.

KS: And is that what caused you to drive your placement more?

Phil: Erm I think so, but I think mostly that the, I think as from my experience of my peers who were doing placements at the same time I think it was clear that if on a on a fairly large scale if people were left, if the placement students were left to their own devices which is often the case because the structure of these things isn't often well planned or people are not always in a good position to, to actually drive these things erm then you could end up quite easily just sat looking at a blank screen.

KS: Twiddling your thumbs almost?

Phil: Yeah exactly and that's quite a common, quite a common experience and that's certainly not what I wanted from it erm so yeah I used I don't know I guess maybe you might call it maturity but I think probably bloody-mindedness as much as anything just to make sure that I would push for what I expected to get from the placement and do something that I felt was of value really. Whether it actually was I mean I wasn't trying to, as it turned out I mean clearly you go in with the anticipation of making a good impression and maybe being offered a place post-placement a work-place post placement if you like and that was as it turns out it's not something I was interested in and nor, nor was it something that was probably gonna be offered as it turned out so it was a mutual thing with that not that there was any great animosity but I think we I think both sides realised that I think

perhaps there wasn't going to be, it wasn't the most appropriate setting for me erm but I mean I felt like what I always drove towards and developed and worked through in my placement I felt like I made a good job of because that that's something I would do anyway even if I was kind of unhappy it doesn't mean I wouldn't as I say make a good job of something but it was very much driven by me picking up, picking up ideas from people not necessarily from the from sort of senior people who were running my placement but picking up ideas from people in a in the office generally erm and running with those if they seemed like they had some kind of value and body to them in terms of things to get my teeth into. So and the idea of the placement actually was if you like the nature of the placement should in theory have been sort of project management because that's quite a, certainly in engineering fields that's quite a strong theme to what a lot of engineers end up doing a main thing, a main occupation for engineers these days is really very little technical involvement or engineering involvement, project management as it turns out again that's another aspect of the work that hasn't really sort of fired my enthusiasm particularly so that was another thing about the placement that I found that that kind of work wasn't necessarily something that I wanted fully I would have I certainly found that it lacked technical interest for me and I think I'm a fairly hands on technical type of person and I think it, it lacked that so that was another thing that I found but because that was why I was there and that was what I wanted to sample I wanted to experience that as part of the placement then I drove I drove it in that direction so that I ended up having I ended up developing a project of my own which is which had been kind of bubbling around in the office if you like, this project about developing a unified system for site resources because it was erm it was a production factory it was producing sweets it was *name of placement company* so it was producing *name of product* as it turns out erm so it was erm I developed a system to combine erm sort of hard copy resources which was kind a manual spirit for production lines or just general information that was stored within the company erm and make up a unified system of online resources and resources within the company and that took quite a lot of doing. I had my own budget and got a few staff together and stuff and so it was quite it turned into something quite major in the end erm and I had to build to that if it had been offered in a fully formed shape at the start I would have probably have gone no I don't think that's a good idea but it developed and that's what I ended up with and obviously there were a few hiccups along the way but I think it sort of it worked out ok in the end.

KS: So, would you say overall your placement was a good learning opportunity for you?

Phil: I think so yeah I mean I say, I think I learned erm it depends on how broad a term you care to apply to learning really I think I certainly erm I mean actually I learned a lot of I ended up writing up quite an extensive database for the for the online system of resources, information resources to be able to access it and people update it and so there was a lot of technical language, coding language that I, I kind of learned and also a lot about the erm learned a lot about who I was and what I want and what I don't want particularly what I didn't want in terms of working environment and working relationships and generally the kinds of work I might be doing like I say I learned that I didn't particularly want to focus on project management because it's quite dry and there's not much technical interest for me erm and also that I probably didn't want to be working in a very in that kind of very corporate PR led kind of environment that wasn't something that suited me so yeah I'd learned an awful lot about myself probably higher up the most important thing I learned was that I could given a chance do it but probably wouldn't choose to so and I think that's as valuable as anything that I could learn but there are also lots of other things as well I did learn an awful lot of technical stuff as well but that was then all incidental really just because there was no-one else to do it so I ended up doing it all myself you know and when these things, if you kick something off like that, that sort of project then I got I had staff assigned to help me with the sort of erm more sort of mundane things like having every manual all the library manuals in the site digitised and then repackaged so that they could be so that all the manuals could be physically repackaged rebound and everything, so this was all done by staff within the company probably not myself because there

just physically wasn't time for me to do it so erm it worked out as a kind of project management kind of thing in the end.

KS: But is that quite advanced for a placement student?

Phil: I would say so yeah.

KS: It doesn't sound like the norm.

Phil: No, I mean I was given, I think I was given about £10,000 of budget and a couple of staff to, I mean I had to recruit staff from an agency that the, I was given, 'cause some of the staff on the factory on the lines if they're injured they will still be expected to come in to do light duties so I had a chap who was on light duties who was helping me he was doing some of the collation work I mean it was weeks and weeks of just collating manuals that had been recopied and reproduced and so forth so there was lots of that and I had someone come in from an agency to do that so there was and that was, there's the relati... there's the sound of, the associated things like from that which is like making sure that their health and safety part of the project role is to make sure the health and safety of the people that you're working with is properly attended to because companies these big multi-nationals are really, really red hot about erm health and safety even to the extent I don't know if you've ever experienced this I'm not sure what your experience is like but making, you weren't even allowed to walk on site whilst being on the phone you had to be stood still while you were using your mobile phone and you weren't you had to you always had to use the bannisters whilst walking up and down the stairs these were the things they would observe these were the behaviours I was referring to these really strict behaviours and you would be pulled up there was a it was an expectation of everybody to pull to, to, to raise it with somebody if you saw somebody not taking on the behaviour properly whether they were senior or junior to you, you were expected to raise that with them. If they were wearing the wrong protective clothing or the didn't have a hair net in the factory or if they weren't using the banister or they weren't wearing toe protectors this was a group kind of responsibility so it's it was very and also this is at least partly to do with the fact that such companies are not wanting people to sue them for compensation 'cause there were there was quite a lot of that as I'm sure you can imagine so obviously they had everything nailed down to the nth degree to make sure people weren't in a place to, to do that to be able to sort of have accidents and then make compensation claims but it's all part of that corporate behavioural thing. Yeah so yeah there's quite a lot of responsibility because I think the girl I had from the agency she was pregnant so I had to have her with erm some kind of personal alarm thing where 'cause she worked on her own she had to have an alarm so that she could be she could warn security if she was in difficulties or whatever so there's lots of all this kind of thing going on.

KS: Did you find you joined in, if you saw someone you then have to, did you actually take on that role?

Phil: Yeah I think so in some respects I mean obviously it becomes a bit of a game especially when its senior types who you're looking to, if you don't necessarily get on with somebody very well you might attempt to keep a sharp eye out for anybody but mostly on the whole it was me that was breaking the rules rather than the erm, and also I think that's one of the reasons why I felt like, I tend to have a fairly I don't know if you could, easy going kind of, I like to have an easy going kind of attitude if I can in the work environment and that kind of environment as you can probably understand is anything but that erm and I didn't find that particularly comfortable. Like the another thing they were really, really precise about logging about swiping in and out on time, your particular role had allotted hours associated with it and if you missed your swipe ins by a few minutes then you were reprimanded for that and it would be... erm and I've always felt, maybe I think of myself as perhaps different to other people and perhaps need that, but maybe I do need that sometimes to be able to be not to maybe miss, have an extra ten minutes for lunch or whatever, but I like to think if I do that I'll make it up at some other point and I tend to work long hours anyway outside of more

when you would normally work anyway as whatever role I tend to do it tends to be a kind of whole hearted approach but that doesn't seem when you don't get recognition for that and you're just treated like another body then I didn't respond to that particularly well

KS: So, it sounds more like a place that will recognise when you're doing stuff wrong but won't recognise when you're doing stuff right?

Phil: Yeah I guess so to some extent, certainly they were very keen about things that we were doing wrong but there was there was scope for recognition if you like but it was the kind of recognition, the, the things that really got recognised were the sorts of behaviours that very well organised corporate kinds of people would do, they would behave in the corporate role consistently and on a very high level and those are the sorts of people who would...I mean that's, that's those are the sorts of people who are required for those sorts of roles you know and I think that's not inappropriate but that's not me so I didn't necessarily fit that very well.

KS: Can you elaborate on the corporate role like what you see as the corporate role?

Phil: Yeah I don't know really it's a it is difficult one to actually to give specific examples yeah I just think it's about a profession...partly I think at least one of the main issues is about giving a professional face so that's about not just about how you dress because often it was often the case that it was a uniform because it's a factory and there's actually a uniform that you're wearing but it's also about having a very erm separate identity for work and I I'm a very person oriented kind of bloke so I don't want to necessarily have a very formal relationship with the people I work with I want to the people that I work with I want to enjoy being with them and I'd like to have some of them as friends maybe even if it's only on a casual basis so it's a case of behaving in a very formal way all of the time to me is a corporate behaviour in a very with all of the, with all of my peers and seniors and so forth and I don't, even if I could do it, and I could probably for short periods it isn't something that I would probably want to do. So it's that kind of thing if I was to try and highlight elements that I would describe as being in that corporate role and also just being really accurate about making sure that you respond in the right ways to, to requests from people who are who are in a position to request things of you to or to demand things of you, you know responding rather, I can remember situations where I felt really kind of put out that I'd been put in a situation and I'd been asked to do something that wasn't appropriate because I felt like all the people who were kind of in the line with me had all kind of taken a step back and I was the only one left standing in the volunteering position you know so and I'm kind of my initial response to these things is to be quite kind of 'well you've no chance' basically, that's not gonna happen. And that's a very poor that's a very poor attitude when you want when you're expected to have that professional attitude it's very much an awareness a constant awareness of what you're saying how you're responding are you going to respond negatively in that situation should I just take a breath and rework what I'm saying and playing a role and I think I'm not good at that you know it isn't a role that I'm not an actor you know and I think that's even if you you'd be saying to somebody yes that's fine I'll do that even though you've maybe no intentions of doing it or you don't think you should be expected to do it and you're going to try and deal with it in a different way or you're going to give it to someone else to do or you know? And I I tend to deal with things very immediately and say look now that's not that's not a very reasonable expectation of me erm.

KS: And what was it they were asking when you were feeling forced to do something...?

Phil: Well I think the, the one that does jump to mind is when we were trying to get quotes for a new machine for online and it was a French company so I was expected to erm generate a quote that was it. It was a company who didn't have English speaking their English speaking employees were not very good to, to erm at least initiate this quote but also I was expected to get the quote for the machine from the company which involved all the ancillary issues with that which are things like transport, fitting erm downtime for fitting on the line all of the all of the sorts of not just the

superficial things but a very in depth quote that would involve all of the issues about manning it all of the ancillary stuff it's difficult to say exactly how it was but it's it was expected the expectation really was to be honest inappropriate. Also it had been the fact that the two people who should have been at the meeting with me when I got this request on me was that they, they would kind of have managed to find themselves elsewhere at the critical moment if you like so I'd been left high and dry in that situation erm and as it turned out you know it was probably maybe I was making maybe my interpretation of it was that I was making too much from it and I saw I'd been put in a bad position and what they were expecting made me feel anxious and 'oh I can't do that' so I responded really badly and I said to my superior 'that's not gonna happen' which is not a good thing to say to anybody I think you'll agree. Erm and that's, that's the kind of when I get caught out like that that's the sort of person that I am and that's why I'm saying that is distinct from the kind of corporate person who will handle that, who would naturally be a little level headed and handle that in a more erm I don't know what you would call it better way.

KS: So, was there anything you did enjoy about placement?

Phil: Erm I think I enjoyed, yeah I think I enjoyed some of the, the interactions with some of the people, yeah I think that's, that's partly I think it's I'm never sure if it's a reasonably good excuse for actually working somewhere or following a career if you're actually if you're doing it and a significant part of it is because of the people or the environment you work in although those are very important to me so I think I did enjoy some of that erm although some of the relationships were quite negative as well because I sometimes don't come across very well (Mumbles: I made a few enemies) but I think that was good erm and also I think I I'm quite an achievement oriented kind of person so I enjoyed achieving the things that I set myself always set to do, like developing a fully integrated resources system for the factory which involved requirements and skills erm and so forth and those achievements I felt were kind of what I found most rewarding about it was the actual physical things that you could, could see from it and even my even the software things which aren't physical but the software that I wrote which would allow the system to work properly and be manageable and so forth and so it's those kinds of outcomes that I found most rewarding.

KS: What kind of training did you get at the beginning?

Phil: Yeah erm I think the training really was based around I think, I think you'd expect its very specific to that kind of production environment so a lot of the training was around safety and around erm strangely a lot of it was around erm the sort of the merchandise if you like trying to understand erm the, the systems that produce the product and, and the also things like taste testing being able to which I performed horribly, my senses are not the sharpest in the room, well pretty much bottom of the class as it turns out, don't know why. Yeah so I think training in general I think was, was useful but only very specifically if you like to that that specific environment. So not, not a huge amount perhaps that I would carry forward in the formal training sense.

KS: So, did you find you learned more as you went along by actively working because you did say you learned a lot didn't you?

Phil: Yes, yeah I think so I think what I learned was pretty much I would say driven by my, what I, what my erm expectations were going in about my own personal stuff which is what I expected to learn for better or worse you kind of expect to learn those things and I think I did I got there were lots of very powerful experiences both negative and positive which gave me really strong guidance on those things erm and also a lot of the other stuff I learned like I've said about the some of the technical stuff is really down to not, certainly not the training that was offered as part of the role because that was like I say really specific health and safety and all this stuff which is all fair and well but a lot of it is very specific to a given setting but the stuff I actually learned and found more valued most value from was the stuff that like I say coding or erm a particular exercise in making a vibration monitoring system for a machine or this kind of thing which were very much driven by my own kind

of interests and picking up on picking up on opportunities that were that were sound, it's difficult to go into that environment and sort of say 'oh I want to do this' before you get there because you just don't know what is going to be feasible but once you realise that people are, once you get to know it a bit and people you pick up ideas about what things might be needed then you can obviously see what you might be able to bring to that on a year basis.

KS: Yeah. So, did you find there was quite a transition period to establish yourself and then learn what you could and couldn't do in the company?

Phil: Yeah I think so yeah in the in the early stages it was clear that erm we were really pretty much kept away from I mean that's what puzzled me about the placement I mean I mean because on a with a company on that scale your kind of recruited for placement by some senior staff from wherever, different factories it turns out so when you actually get placed what your, how you are recruited and the purpose you're recruited for when your, and obviously this is coloured by your expectations of that can often be very different to what's actually available on the ground because it just if whatever, whoever's in charge if they don't agree with the context in which you were recruited nobody's going to make them do that so it was clear early on that we weren't going to be formally involved with projects, project management with the projects which were actually happening within the factory we were quite clearly kept away from that actually which I found slightly puzzling, even if, we weren't allowed to spectate even on existing projects which I found rather odd but...

KS: And did you find that was, did you miss out on that?

Phil: I think so I felt so yeah because its if you're gonna go with a with that kind of with that kind of placement idea in mind that you might get something out of it in a project management sense it doesn't seem to me to be any great harm in being involved at least just spectating on the process almost being involved in meetings and so on that never happened and so I realised that if I was gonna develop that then it would have to be away, away from the main projects being run on site so you have to make your own don't you if you can, well I guess I was lucky that there were opportunities

KS: With regard to your co-workers and your employer obviously we've kind of discussed the relationships haven't we but in terms of learning from them, was there much opportunity for collaboration or...

Phil: Erm yeah I think so I think I did I picked up from technical staff, engineering staff and technical staff on the lines you pick up I certainly felt I picked up, a lot of staff were over busy you know as is always the case there was always a limited opportunity from that but I didn't feel overall that I'd missed out on that, I think there were from technical staff on the lines and engineering staff I was able to pick up quite a big understanding about the not just the specific production of confectionary but also the wider setting of machinery what machine will perform those sorts of roles you know 'cause they've got obviously a wider, wider kind of context erm just like food processing, chemical processing erm and the kind of sort of ancillary heating and engineering systems that go alongside all of those. Just physical and mechanical engineering which is what my course was so.

KS: So, did you feel comfortable enough to go to them and talk to them?

Phil: Yeah I think so I mean again its it was largely based on personal relationships I think and attempting to have a reasonable relationship with people so that you could ask questions and get guidance from them and erm but no I felt like I learned quite a lot in terms of erm the mechanical engineering involved in that kind of setting which is, there's a lot goes in to it you'd be surprised there's a lot of very clever people, it might sound a bit sort of erm trivial producing sweets but there's a lot of money in it it's like anything else if there's money involved then effort and clever people will be expended to meet that end really so there's quite a lot involved.

KS: And then what about with your supervisor what was that relationship like?

Phil: Yeah I mean I think I've already given you one example about that so I didn't much care for him this particular my direct line manager erm just a personal clash if you'd like but then again I guess that issue would be exaggerated by that example where I was behaved less that appropriately if you'd like erm I mean I did apologise to him once I'd realised that I'd not responded very well which it doesn't take long to figure that out I went back to him and said I'm sorry I shouldn't have said that it was inappropriate of me but ultimately you know it's kind of erm if you are in a position to respond like that to a senior then it's I guess it's I dunno you're not gonna endear yourself greatly either way whether you kind of rectify that or not really so it wasn't a great relationship I would suggest between myself and him

KS: Did you find he still gave you plenty of guidance throughout or do you...

Phil: Erm I don't think I, I don't he ever actually he was very professional about it you know erm in as much as he was erm capable of that and I remember getting really erm severely kind of erm badly beaten I guess verbally and emotionally for doing a bad presentation which he didn't much care for. He was the kind of senior type who would be very aggressive, it was kind of an aggressive environment I found that whole production environment stressed kind of let's get the next million tins out kind of whatever. I found the whole thing a little stressed and yeah so he was quite I think he was quite aggressive erm and I'm not keen on that kind of leadership really.

KS: Yeah so generally the atmosphere of placement was quite stressful?

Phil: Yeah quite a masculine, I've always thought of it in retrospect as a kind of masculine environment where you, if you're not seen to match up to the standard or if you don't...you get, it's kind of, kind of a bullying environment as well you're kind of pushed into various directions by peer pressure and in that behavioural thing I was describing also was part of that, it's used, not necessarily the same thing but it's used in that context if you know what I mean, so yeah, no I wasn't particularly happy with the environment

KS: Did you find you could apply a lot of your university learning to your placement?

Phil: That's a good question erm... I think probably not I think on the whole, I think that's partly to do with the fact that our mechanical engineering is a very diverse field which means the undergraduate degrees are thinly spread its quite sort of superficial over a big area if you'd like so I would say that, and it's quite theoretical a lot of it so what I was able to bring from my actual first two years probably quite a, I wasn't necessarily in engineering prior to that but I had a very strong practical background so that would probably dominate and did dominate and even now I kind of think to myself in a kind of priding myself ironically in saying even after a degree I've still managed to have learnt nothing and kind of behaved like the erm sledgehammer type I was before you know, it's kind of erm there's always when you get to a certain age perhaps you sort of become a little difficult to, it's a bit difficult to change your focus and be able to apply that so I think I would probably have responded in a in a way that was appropriate to a way of who I'd been before anyway, before being a second or third year undergraduate, but I think also the limited opportunity for that to apply anyway I think. But in terms of coding that was part of the course, so we did some coding and some erm degradation monitoring, bearings and things so yeah, some bits and pieces but not I wouldn't say it was predominant in any way really.

KS: What about when you returned did any of your experience relate to your studies?

Phil: Yeah, I mean I certainly, again the, having developed the language some of the coding languages that I was using that that I found helpful that was useful in my final year erm outside of that I think not a huge amount I would suggest it was yeah quite a specific environment but erm yeah, some stuff.

KS: So, do you think if it had been a less specific environment it would have been easier to relate

Phil: I think inevitably because like I say the, the courses that we do are the undergraduate courses are necessarily very superficial and not specific because they have to be erm for us to be able to go on to specialise in the role that you would take up after that and whichever other part of engineering you move into its bound to be orders of magnitude more specific than any course we were on so its a kind of inevitability I think so I'm not sure that you would find a role that was necessarily much more broad based.

KS: How did you find going from being in a placement and working, I mean for you it's probably different to a younger student because that might have been their first role, whereas you will have had prior work experience...

Phil: I think, yeah I'd worked previously, I'd worked previously but I think in some ways there's probably as many similarities as there were differences between my peers and myself because it had been, how long was it before I'd worked, it must have been 15 years of not working through ill health so in a sense it was, and partly going back to university was part of what I like to call if you like a renaissance for myself after that long period of ill health it kind of it was almost a, almost like a 20 year old if you like in a lot of ways in terms of erm keenness and nativity and so forth erm still am in some ways 'cause I'm kind of I'm I haven't had that huge block of time grinding me down into this more mature person than I perhaps am so yeah I think my experiences will have been to some extent quite similar to my contemporaries.

KS: Did you enjoy returning to university?

Phil: I think I did, I think it was, like I said I learned a lot about what I was wanting, and I think it was clear to me that what I'd experienced was a useful experience and it clearly meant that I was probably better suited to a more academic environment on the longer term which is why I'm still here, in that respect I guess

KS: I was going to say did it change your kind of attitude to your studies

Phil: I think so, it did really, I don't think it changed my attitude to my studies because that's always been much the same I always wanted to excel but it changed my attitude in terms of being a bit more realistic about what might happen afterwards, I'm not saying I'm particularly well suited to an academic career, I'm not saying I'm well suited to any kind of environment where I have to be with other people, you know eccentricities make that difficult but I think the university or academic environment is a lot more...a lot more receptive perhaps to sort of the sort of person that I am so its a better setting erm and I do enjoy it I get a lot out of what I do you know the teaching and the research and stuff and I think coming back to that even though I was only an undergraduate at the time I think was what I enjoyed doing it was a relief perhaps to be doing that.

KS: Did you find the lecturers attitudes to students changed after they'd done a placement, or do you think it was a return to university as you'd known it?

Phil: It's difficult to say really you hear, you hear second hand material from people saying that people are different when they get back and so forth, I'm not really sure it made a big difference, I don't know from, I'm only speaking from my own point of view, erm my erm attitude to the work I think that's what people say, is that students come back and they've got this different attitude a more rigorous kind of ordered more focused attitude to the work from before placement and that didn't alter for me particularly...could have been the best in that context because that's the sort of person I am I'm very competitive among all the other things erm so that never altered for me but I think that I recognised in other people that there were improvements in peoples kind of work ethics and so forth although not universally I think.

KS: Do you think it changed your perspective on how employable you were?

Phil: I think it did I think it also made me realise I was probably in reality less employable than I thought I was and erm I'd like to think that around that time I was being quite confident and thinking 'right yeah I can do this I can be whatever I want' but ultimately I think the difficulties that I experienced in interpersonal relationships that I'd that I'd experienced difficulties with in that setting kind of amplified the realisation that it wasn't going to be anything, anything after a degree was going to be difficult because, because I'm just a bit just too variable, too up and down, too whatever, I mean nominally I'm bipolar that's one of the labels I get or have had along the way how accurate that is I don't know these things get stamped on you don't they erm so the variability in my character had been kind of shown.

KS: Did you never find that was an issue at university?

Phil: I think less so I certainly made a nuisance of myself at university as well but because you're in that student role I upset lecturers and always have done just because I'm kind of being some days I'll be a pain in the backside and other days I'll be nice but erm but there's a different role isn't it so as a student you have you have a kind of erm it's an unequal relationship isn't it between lecturer and student there's always that kind of well we have to be slightly more gentle with the students because they're, they're paying for the stuff but also they are here to learn and they're growing and I was definitely growing as a person you know throughout that erm so it's a very different environment and I don't think, being in a work environment definitely reflected those weaknesses on my part more than I saw them on my undergraduate course.

KS: What was your prior job?

Phil: When I left school, actually that was a long time ago, I just had my 31 year reunion at the weekend, so yes this was late 80s so late 80s I went to University and dropped out and worked at the school I went to as a pupil as a technician for a few years and then my, my mental health problems came into, became too well too dominant really and I stopped work and then I was out of work for about 15 years and then I came back to back to university in like I said 2007 yeah so 2009 would have been the third year placement year erm so in between really I hadn't worked terribly formally at anything I'd done bits and pieces building work and I'd take my hand to most things but I hadn't certainly been formally within engineering

KS: how did you find your placement compared to earlier work?

Phil: Erm I think the work was different, clearly but I think my I think the difficulties that I experienced in terms of experiences in terms of the fitting within a hierarchy were broadly similar really and still with a little bit more experience I was still the same person so still creating the same kinds of difficulties and traumas if you like so yeah similar in some ways but I was more, certainly more focused and more able to function well the second time around as a full time employee, I was fairly unwell back in the 90s.

KS: What was it that made you drop out of university to begin with?

Phil: Just not coping with the course really this was back in the 80s I did ophthalmic optics which is the course to be an optician and this was over at Manchester erm yeah just not being well and not coping and just being dysfunctional really, failing exams, all of that. So just really unhappy and what have you like I say so I dropped out worked for 5 or 6 years and then it just got worse again so stopped work and hid for about 15 years erm well it wasn't quite that long I got married moved in with my wife at some point towards the end of that period of being unwell and then from there really there was a kind of a steady improvement when my life settled down a fair bit, so yeah I guess in the last say 10 12 years I've been here 8 years so a couple prior to that I started to pick up and start feeling a bit more able to manage.

KS: Overall what's your verdict on placement, are you glad you did it?

Phil: Yeah I think so, it was it was an important experience, I think, had it not, had I not done that or had I done something else or had the course not been a sandwich course I think I would be I wouldn't be here doing what I'm doing now I don't think because I would still have had some questions unanswered about where or what I wanted.

KS: it kind of guided your career?

Phil: Yeah I think that's the biggest, that's what I got out of, of it, probably the most important thing I got out of it was the, an awareness of where I am in a wider context as a person and I realised those sorts of environments are probably not the best sort of thing for me so yeah that was probably the most valuable thing, a bit of a negative thing if you like but certainly none the less valuable.

Appendix 10 – Sam Transcript

KS: So, to begin with do you mind just telling me what course you're on and where you are on your course at the minute?

Sam: Yeah, I'm in my master's year so the 5th year of the automotive and motorsport engineering programme

KS: Right so is that the last year?

Sam: It is yeah

KS: And what is it that made you choose that subject

Sam: It's something I've always had an interest in I've grown up racing motor bikes so it's a natural progression really straight into it

KS: And what is it you're hoping to gain from doing the course

Sam: At the end of it I'd like to be a calibration engineer for engine control so again pretty much it follows straight on really so that's what I want to do

KS: So, once you've done your degree are you qualified to do that then and you can go straight into it?

Sam: Yes essentially

KS: Erm right so just talking about university a minute before you went on to placement, how do you think you found uni in those first few years?

Sam: Erm I found it hard really hard I've come from more of a practical background and erm I didn't do A levels I did a BTEC and that were more practical less emphasis on theoretical maths if you like and the first 2 years I found really difficult trying to get my basic maths up to scratch erm the applied ones if you like. In the first year they sent us back to college to learn how to use manual machines and that were all fine and all the you know the manufacturing processes that was fine but the actual theoretical maths I found really difficult you know a bit of a struggle

KS: So, what did you do your BTECH in was that related to

Sam: Manufacturing and engineering

KS: Oh, ok so it just didn't have the theoretical aspects to it?

Sam: It was a lot more process erm focused if you like

KS: So, did you go and kind of seek any extra help in those areas where you struggled or

Sam: No, no luckily, I've got a really good group of friends and they did help me where they could erm obviously that traded off where I helped them with the more practical aspects yeah

KS: So, what did you enjoy about uni before you went onto your placement?

Sam: Not a lot to be honest no them first two years were a struggle erm I don't know, when I felt as though I was starting to get my head around the maths everything else seemed to flow a bit more erm some of the assignments we had were quite interesting as well but erm I wouldn't say I was jumping up and down for the first two years to be honest.

KS: Erm so my next question was, were there any aspects that you disliked so obviously that's the maths side of it

Sam: Yeah, the theoretical focus I genuinely thought it would be a bit more practical but

KS: So why was it that you thought it was going to be more practical is that because you've come from a practical background

Sam: Yeah, I just assumed, and I assumed wrong

KS: Did they tell you anything at like open days or anything about what it would involve or

Sam: Erm I think they promised erm because basically the programme I'm on its a mechanical engineering programme with the additional automotive unit and we just assumed when we came for the open day that we'd be in the auto lab more learning how to use all the dynos and everything like that, erm so I just assumed and obviously to be able to do that first you've got to be able to do this which is quite right.

KS: So how often did you get to do the practical sessions was it not very frequently?

Sam: We had what, see what university would call a practical session and what I call a practical session are two very different things, but we had practical sessions for maybe 6 weeks and then we had to write a report for each erm it was like a programme basically but yeah it was strange

KS: So, were you not assessed on the practical work you were assessed on a written assignment based on the practical work is that right?

Sam: Yeah

KS: So how would you feel about that would you have preferred to have been assessed directly or

Sam: Well it is difficult for them erm so what they call a practical session is you go into a lab and you maybe look at you get someone to peddle a bike and then you look at stress and strain in the handle bars and a few various measuring stuff and then you'd go away and write a report on the results that you'd collated and a bit of background on it so I suppose you could call it a practical session erm but obviously coming from quite a strong practical background like my BTECH in my final year we erm myself and a group of a few others we built an off road buggy from scratch

KS: So, compared to that it's not the same

Sam: Yeah it were like "what's going on here"?

KS: So, I was going to ask what you found most challenging, but I suppose is that the maths

Sam: Yeah, all the theoretical background

KS: So, what did you find most valuable in those first couple of years from your degree?

Sam: Probably getting up to scratch, what university class as being up to scratch, once I started to get there I really started to enjoy it more, there's not one thing that sort of stood out its just once I started to get my head together then it all started to...

KS: click a bit

Sam: Yeah

KS: So, did you feel that university in those first few years prepared you for your placement or not?

Sam: Yes I do actually, erm so, I wouldn't say totally because I was lucky enough to have had a job before and I'd done other bits of work experience they did you know some of the work-shops what they did erm more about sort of erm situation analysis I suppose you could call it some of those workshops were quite good erm and some of the project techniques they helped.

KS: So, what's situation analysis to do with?

Sam: Erm some of the jobs you apply for they ask you to do erm they give you a question and say what would you do in this scenario and you know we went through some stuff erm in second year and with the placement people as well about getting you to think well what would you actually do in that situation, and that sort of prepared you both for the test and for the work you were doing.

KS: Yeah so you said that you've got past work experience and jobs and they helped you as well what were they?

Sam: I work in a pub

KS: Right and how did that apply to helping you at work on placement?

Sam: Erm just sort of learning how to manage people without being rude to them, sort of getting what you want from people you know getting the right information

KS: So, are you kind of a level above people at the pub then?

Sam: Yeah pretty much

KS: Right so I'm going to move on quickly to the application then, so when you were choosing to apply for different placements did you have criteria for which ones you wanted to pick?

Sam: Erm sort of yeah I did cherry pick them I didn't apply to ones that I wouldn't necessarily be interested in if that makes sense, I didn't just apply for everything, and to be honest I did it the wrong way round 'cause I had my hopes set on one and I put a lot of work into trying to get a good C.V. and a good cover letter and sent it all off and then I did nothing after it I just waited from them I did it the wrong way round really, I should have applied to more and then when I got a no from them it was quite late on and then it was like oh panic, so then I started applying to more but I did it the wrong way round definitely.

KS: So how many did you apply for overall?

Sam: Erm between 10 and 15

KS: And how many interviews did you end up doing from that

Sam: I think I got, I had a skype interview erm which wasn't a normal experience, I didn't even have Skype I didn't know what it was erm I think I had about 5 or 6 interviews

KS: So, after your offer did you not really pursue the rest or?

Sam: Well I was a bit naughty to be honest because the placement team wanted us to take the first one we were offered and I didn't I had an offer from one and then I saw another which was in the pipeline to be sort of processed and I sent this company an email saying look I would prefer to come to you but I've got an offer is there anything you can do and then luckily they sent me an email saying can you come down I think it was the Monday yeah can you come down on Wednesday for the interview.

KS: Oh, that's good so you kind of rushed the process along to make sure that you had both your options?

Sam: Yeah

KS: And was that because you wanted to go to that one more?

Sam: Essentially yeah

KS: Yeah because I can imagine it's a struggle to have an offer from one and be expected to take it when there's another you wanted

Sam: Yeah the one that I got an offer from first it was going to be very interesting and I got on well with the people there, but to be honest I had to move away from home and live it were near Blackpool, and it wasn't enough money for me to be able to comfortably travel and live away as well, so this other one offered a little bit more I had to move further away but it offered a bit more so.

KS: So, it balanced it at least?

Sam: Yeah it made it a bit doable

KS: How did the interview process go

Sam: Erm well, well I got the job

KS: What kind of thing did it involve

Sam: Oh, just a chat really

KS: Oh, really I know a lot have involved like assessment centres and stages

Sam: Yeah some do. Some want you to fill in an online form and then if you're successful then they want you to do all these psychometrics tests online and that's even before you even get to the interview, the one that I got I had to fill in like an application form and send it off which I did with a C.V and covering letter erm and then obviously I rushed things through a little bit and then I got to the interview and it was basically just a chat erm a slight I suppose it wasn't even a test it was do you know what this is they gave me some 'cause a lot of the systems they use are in binary so they gave me erm like a sheet of paper with some well obviously ones and zeroes and said can you calculate these and I said yeah and that was about it really

KS: And is that what you knew from university had you learnt that there?

Sam: Erm in a fashion yeah through college and uni

KS: With your placement what were you hoping to get out of it?

Sam: I wanted to apply what I'd learnt at uni I wanted to see where it fit in if that makes sense because it's alright learning all this stuff but if you're never going to use it it's a bit pointless, so I wanted to get some, some work experience under my belt really and I felt as though I did

KS: Oh, that's good so did you find a lot of it applied then or?

Sam: Not a great deal but important parts of it

KS: did you do anything to prepare yourself for the placement before you went on it

Sam: No

KS: Did you research the company or

Sam: A little bit for the interview

KS: Did you get any advice from anyone?

Sam: Not really no nothing that really stood out.

KS: And in hindsight is there anything you wish you would have done to prepare yourself a bit more?

Sam: No not really no honestly, maybe I could have read through my C.V because caught me out at my interview they had a copy of my C.V. and they said oh can you just talk us through your C.V. and I was thinking I can't remember what's on it because I'd sent it off so long ago but yeah there's nothing I'd do differently.

KS: Ok so I'm going to move on now to the initial I'd say probably week or two as you were getting into your placement so what were your first few weeks like

Sam: Erm pretty horrible to be honest I'd just moved away from home it was the first time I'd done that I was living by myself in an apartment I had my own apartment that was pretty horrible and then the team that I was in it was coming up to their sort of busy silly season and the whole team went to America for a month so I was sat on my tod trying to learn how to do it

KS: Oh no really so it just happened to coincide so did they have a proper placement programme or was it that you were a one off

Sam: No, I was the first one, so I was the guinea pig for the rest of them

KS: So, who was left to help you

Sam: No one I was in the like the Diesel team if you like because we were with cars and the petrol team were the only people left I was doing a bit of work for them, with them and trying to figure out my own stuff as well

KS: So how long did you have to try and settle into the new area before you had to start your job

Sam: Erm I moved on the Saturday started on the Monday

KS: Right so literally everything was just new at once, ok so talk me through the first day then I'm trying to get an image of what's going on

Sam: So the first day I had I was living just outside of *place name* erm and the place where I worked is called *placement company name* it's like a big proving ground erm so there's not just our company there there's loads of others it's just a generic proving ground erm we had an office there so I was based there so the first day I had to go to London to pick up a laptop because their headquarters is in *place name* in London so I had to drive I had to be there for 9 so I had to drive down there in the morning get sorted and come back to work to get my laptop set up so that was the full first day and then a few days after that all this is sort of like learning meeting people it wasn't a big team there was only maybe 20 of us all in all erm meeting all the different managers trying to learn how to use the software and user manuals erm I got showed around a little bit with the cars and sort of what they did erm and then I had to go, that was like the Monday, Tuesday, Wednesday and then on the Thursday I had to drive to Essex to take part in a kind of driver training programme because the cars we work with are quite powerful so part of their criteria was that we had to do this training before we were allowed to drive on the road which is quite sensible so I did that that was

Thursday and then Friday carried on just messing erm with the software and then came home on Saturday

KS: So, at what point did they go to America or was that the other team that were showing you around

Sam: No that was our team I had maybe a week and a half and then they went for 4 weeks

KS: So, did they tell you like what you needed to be doing for that 4 weeks that you were gone?

Sam: Well roughly yeah

KS: Just like an overview

Sam: Yeah

KS: So what did you use to help you in those 4 weeks to learn what you needed to do and learn the software and learn everything else

Sam: I just asked people to be honest because the software is generic software which is quite good so I could learn how to use that actually connecting to the cars was slightly different so I were trying to learn how to do that and then my manager while he was in America he kept sending me work and was like oh we're really busy can you just do this for us and I'm like well I think I can so I got a bit of help but yeah it was good it was a learning experience it was sink or swim which is like how I work best really you know here's a task can you do it well I don't know let's find out

KS: Did you get to any point where you thought there's stuff that I can't do here and if you did, how did you kind of tackle those things?

Sam: Yeah loads of times yeah, you've just got to ask

KS: So, would that involve phoning people there or asking people in the workplace

Sam: Everything anything you could, yeah I mean luckily I'm not shy I'm not backwards in coming forwards, it doesn't really bother me I can talk to anyone so I'd just ring them and ask them

KS: So were you happy with the amount of work you were given initially and the nature of that work

Sam: Initially probably not, as I say I was the first one there so they didn't know what I could do and I didn't really know what to expect and then you come to like erm you get issues because I was a student and the work we were doing was all like prototype work so I can't actually sign anything off myself 'cause I'm a student so even though I could do work I couldn't have it signed off until someone else had checked it which is quite right erm so them first few weeks were a bit like well I don't know if I can do that 'cause

KS: Oh yeah 'cause there's no one around to sign it off so how did you overcome that you just have to crack on

Sam: Pretty much yeah

KS: So, who decides you can't sign off is that a university thing or a company thing?

Sam: No, it was actually a customer thing, well the company I worked for and the customer

KS: Right so they say... well that makes sense

Sam: They'd had placement people before, but the placement people tend to go to the headquarters in London they'd never had one where I was

KS: Right, so it was all kind of quite new to them too?

Sam: I mean by the end of it we had it cracked, but just the beginning my manager just sent me some work and was like can you just flash this car with this well no because I've never done it before I don't know what I'm doing he had like 500 emails he's sat in America obviously in bed

KS: So that's what you had to do in that case email over for advice?

Sam: Yeah

KS: So, did anything make that initial period any easier

Sam: Not really no

KS: And what was the hardest aspect of it I'm guessing it was the fact that there was no one there?

Sam: Pretty much yeah, I mean luckily some of the people there did help me out a lot and you know you've just got to ask if you don't know how to do it there's no point saying you can do it you just make a bugger of it, just ask

KS: So, what would you have changed about the initial if there's anything you could have changed

Sam: Just the timing it was a customer test strip, so it was like you are going, I mean they'd done all the work they needed to do prior to that and then in the, they call them validation test strips, so they validate at hot weather and cold weather, so it just happened to be a hot weather test strip to America

KS: So, could you describe to me your workplace so like the size of the team the place the size, the atmosphere

Sam: Yeah, the placement I worked it was a bit strange because it was a proving ground and we weren't the only ones there, there were certain areas not necessarily where you can't go but things you can't look at 'cause everything's prototype so I had security clearance to be able to drive on site and you weren't allowed to walk anywhere on site you had to drive so the sites about a mile back to front and we were in the control tower for the entire proving ground we were opposite track control so that was really handy for us if we wanted to get let out we just went across the hall and signed in erm there was a test I had to do which meant that I could drive around on the proving ground and I had to learn how to properly communicate with radios so radio communication, so that was that, and then the team I mean the office wasn't big it was just you know a room on a floor basically on a floor there were two rooms our room and track control and there were maybe 20 of us erm predominantly with it being a German company that took a bit of getting used to you know people didn't always speak English it was German

KS: Oh, right so even though it was over here most of them spoke German?

Sam: Yeah, all the managers pretty much yeah so I mean I did German at school I could speak a tiny bit it's something I've got an interest in erm and it does help you develop and you don't necessarily have to speak it you can have a go and they always appreciative erm but yeah it was great really

KS: So, did you try a lot of German were you trying to speak a lot of it

Sam: Yeah

KS: So were you doing anything to learn it or were you trying to pick it up as you...

Sam: No just asking yeah just asking, to be honest I didn't really have time to learn it, I mean I can't speak a great deal I could probably just get by but yeah it was good fun

KS: So, what was your relationship like with your colleagues?

Sam: Really good yeah you know luckily my manager he was English and we just hit it off straight away we got on really well which helped and he really helped me out in my last few weeks because my flat finished a week earlier than my placement so I commuted for a few days hundred miles each day so they were long days and then he found out I was doing that and then he was like no, no Thursday you're coming to stay with me so he put me up for a night so he were brilliant

KS: Oh, that's really nice! So, did he kind of supervise you on your placement and keep track of what you were doing?

Sam: Essentially yeah, he was the guy I reported to basically

KS: And what about everyone else did you do a lot of team projects or was it more working on your own and just speaking to people every now and again?

Sam: It sort of depends I mean because I couldn't actually take responsibility for anything with it all being prototype work erm obviously all my work were for other people essentially erm we got into a bit of a routine where I could take a certain type of work but I still had to report that back I'd do everything and I'd show them what I'd do but essentially it had to be signed off by them erm which is right really its fair enough erm, times where I didn't really have a lot on and there were times, erm I went and pick cars up from the customer and took them back me and the other placement student because we had like I was the only placement student at the office and then we had we have what's called residents so actually at the customers location you will have a person from this company so there was a resident engineer and then he had a placement student as well so me and him got on really well which helped a lot because if I ever wanted anything I could just ring up and ask him for it and he'd sort it out and I'd go and get it and likewise at my end erm so that helped a lot erm but yeah I mean it was just asking about what sort of work have you got what can I do for you and I got a good mix of erm sort of both teams diesel and petrol

KS: So, did you get to see them outside of work 'cause you're down there on your own aren't you for a full year

Sam: Erm sort of, yeah me and the other placement student became really good mates, so he'd come to mine erm and we'd go out now and again, but other than that no I'd come home every weekend so Friday afternoon that were it I'd come back up

KS: With you struggling to come to this new place did you find that changed over time?

Sam: It did get easier it wasn't nice, but it did get easier

KS: Could you tell me a bit about what your job was and how it changed over the year if it did change

Sam: Yeah so I was technically like a support engineer the company I work for take control of what's called work packages erm for mostly engine control so they have different work packages that control the engine and how it behaves essentially and I was based in the diesel team erm relevant training on it when I asked for it and essentially what I did was connect to the car follow a test procedure take measurements from it change a few things take more measurements and then put them into basically a spreadsheet that told if it were going to work or not so a lot of the stuff I did

was safety testing, vehicle reaction testing, something called container testing which is like a final release so once all the works been done we've put it on a production engine control unit, erm test it on the car and then sign it off which was I did a lot of that basically erm that was for the diesel team and then the petrol team we did a lot of monitoring work so making sure there were no faults erm if there was faults trying to find out why, same again releases erm I did a bit of emissions work I did quite a lot while I was there a good mix of cars it was really interesting yeah it were brilliant

KS: So, did you find that it got did it get any harder as it went along or was it a case of it was just varied

Sam: Erm yeah some of it were hard I finally got given my own project and that was really difficult erm trying to make a car run properly on a dyno for some emissions work and that was really tricky erm but yeah I just got on with it

KS: So how come you got your own project is that because you were able to demonstrate you were able to do it

Sam: Yeah pretty much I mean it got to a point where everybody was busy doing what they were doing they'd seen what I could do and what I was doing, and I just got asked one day this other manager and I just said yeah just give it a go

KS: Erm so how do you think that your practical experiences at uni and at BTECH level how do you think they compared to going out and doing your placement

Sam: Erm you could see that 'cause I had to work on cars as well fit various equipment and it really showed through there erm you know not afraid to get stuck in you could see some of the people some top level engineers and they couldn't even tell if the battery was flat or not the car wouldn't start and they're changing all the calibration and I'm just like no it just needs a new battery

KS: So why is that is that because they're more into the theory?

Sam: Yeah they'd come to me the placement students and they'd be like oh could you come and just fit this for me a lot of the time, yeah me and the other placement lad were the same we'd come from I wouldn't say similar backgrounds but you could tell we just weren't afraid to get stuck in and if that's what it needs that's what it needs get it done

KS: So, do you think if you'd been relying only on university knowledge and not the BTECH stuff you'd have been as able to do the things you were doing on placement?

Sam: You'd have been able to do it because you got shown what to do but whether you'd feel as comfortable or not

KS: Yeah, so what aspects of the placement did you most enjoy

Sam: Everything I loved it I absolutely loved it, it was good money for a placement I loved it, I got asked to go on a 5-day test strip to Austria, so we drove from Leister to Austria and back again

KS: Oh, really who did you do that with?

Sam: Just one colleague who erm we had some at the last minute the calibration got changed and in order to release it you've got to validate at altitude as well erm we didn't have anything in this country we don't have anything high enough and he was like right I've been to Austria before lets go to Austria he was like are you busy at weekend he said no he was like right we're going to Austria

KS: And what did you least enjoy about placement was there anything that you didn't enjoy

Sam: I wouldn't say about the placement but living by yourself isn't fun especially so far away from home you know if anything goes wrong it's weird because when everything's going right you can't tell anybody about it but when everything's going right it's alright but then as soon as anything starts to go wrong it's like your world starts to fall apart and you can quite easily like it can make your head dip a bit you've got to be a bit careful of that but like a lot of where we worked a lot of people like one guy worked in the centre of Leister so that was like an hour that way and then all the others lived in *location* which was an hour that way and I lived 20 minutes this way so I was really by myself

KS: And were you living at home when you left?

Sam: Yeah

KS: Yeah so it's such a massive change, so what do you think were the more valuable things you gained from doing a placement

Sam: Erm a lot of people skills a lot of again learning how to get what you want from people and especially the customer as well because a lot of the time they can be quite funny erm they say it is them paying you to do the work so get on and do it erm getting the right information, finding out who to get the right information from that's a big, big thing erm I suppose you could call it trying to deal with working with other languages as well things can get quite easily lost in translation and timing as well I mean I used to start at one guy used to start at 7 I used to start at 8 because in Germany everybody's an hour ahead so when it gets to 4 o'clock everybody has gone home

KS: So, did you not have like a set time like were you not told come at this time and leave at this time

Sam: No I worked on flexitime so I was very much in charge of my own time which was brilliant erm the only thing I couldn't do is I got my holiday days as well but that's sort of the big thing that me and one of the colleagues that I worked with that I went with to Austria he noticed this as well if it needs doing I'd rather stay and get it done so I'd rather put in a long day to get it done if somebody needs it get it done don't do half of it and then come back you know quite often I go in at 8 and stay til 6 7 just to get things done and especially even when a lot of the engineers had gone home I'd still be there and doing things but then I got my time back Friday afternoon I could just go home

KS: Yeah and that's much better for you especially because you are travelling back so I suppose that would have helped

Sam: Mmhmm as long as I did 37.5 hours a week I was laughing and when I went to Austria the Friday was obviously we went on Thursday we went Thursday Friday Saturday was double time it was a bank holiday so that was double time so I went to Austria for 5 days for a nice time came back and had 10 days of flexitime to take we went everywhere the company's headquarters are in Germany so you know people would come up to you one Wednesday and be like are you busy at weekend and I'm like well not really and they'd be like can you take a car to Germany for us on Saturday so I'd just drive up and then fly back

KS: That's absolutely crazy so is that I guess that's a big part about what was enjoyable about placement as well?

Sam: Yeah you got to do work you got to play with all these nice cars you got to travel yeah it was mint I loved it I didn't want to leave

KS: So, what are you thinking for when you leave university are you going to try and go back

Sam: I've got a meeting with them on the 5th January so hopefully

KS: So, do you know what that meeting involves is it to discuss something like that?

Sam: Pretty much yeah I'm going down for a chat erm he mentioned that I asked the question I said you know would there be anything available 'cause the team is expanding and they've let a lot of people go or a lot of people have left so they're struggling to find people with experience which plays into my hands so I sent them an email saying have we got anything coming up for like June/July when I finish and the guys come back and said yeah you'll be a good match you obviously know what you're doing so we're going to try and look at something

KS: That's exciting, that's great. Do you think that you've changed since doing your placement do you think it's had much impact on who you are as a person?

Sam: Erm I had to do a lot of growing up I had to learn how to cook, I had to ring my mum and ask how to do soup I didn't have a clue I just had to learn I mean luckily she did all my washing for me I brought it home on a weekend yeah I mean managing your time I suppose that makes you grow up a lot more because I could choose what I wanted to do pretty much

KS: Yeah especially with that I guess there's a way of it either going well for you or it going quite badly if you're not managing it right.

Sam: It was just fantastic I mean by the end of it, the sort of last 3 or 4 months were fantastic I wouldn't change anything about it

KS: How come the last few months were particularly good

Sam: Because by the time (inaudible) they actually let me do and sort of things I could take responsibility for erm so once everybody was on a clear footing and they knew what I could do and I knew what I could do I knew what I were allowed to do and it just seemed to flow. I mean I were given work did it, while I were doing that people would come up and say could you just do this for me can you just go get this car and it were like yeah and I mean we were really the 2 placement students by the end of it were busier than the engineers because not only were we doing their work we were doing other people's work as well

KS: But were you happy with that

Sam: Yeah loved it absolutely loved it I mean it was so busy I was bringing cars home on the weekend I had to do like these container test where I had to drive 300km and then make sure there were no faults with the car and to do that I live 100 mile away each way so it got to Friday afternoon and like right I'm just going to take this car I'm going to have that for the weekend and they were like yeah crack on

KS: Perks of the job. So, do you think if they'd have had placement students before that you would have got into that period of being settled and knowing what you were doing earlier, or do you think it's more about your relationship with them and them knowing you

Sam: I think so yeah I mean you could have I mean the guy after me luckily he was good but I know the sort of guy that followed my friend he wasn't I wouldn't say he was rubbish but he didn't seem to engage as much as we did erm I mean it was really easy for me to get stuck in I mean I had nothing on when I went home on a night I just used to cook tea and go bed so for me it didn't really

bother me I could stay as long as I wanted and get stuck in erm he didn't seem to engage and I don't think he got a lot out of it

KS: Like you get out what you put in

Sam: I'm quite glad really because if someone had been before me and they didn't want to engage as much as I did then I might not have had as good an experience sort of thing

KS: So how applicable did you find your prior knowledge to placement do you have any examples of where you were able to use the knowledge you gained at university to placement or was it kind of generic theory stuff really

Sam: Yeah pretty much yeah, I mean we didn't actually do a lot of theory stuff it's all sort of test work erm and you were practically given the test data you know that came from Germany so it was more logical you know learning how to use the software learning how to get sort of information that you needed erm contacting people who can you get it from

KS: So is it the same kind of software but you're using different

Sam: I mean some of the software were really hard we were given some by the customer and it were just terrible erm it never worked and then someone else would try the exact same thing and it worked it were just awful it was absolutely awful I mean you had to use it because you were told to use it some of the stuff were quite interesting and a lot of the time the actual fault were with the car because they're all prototype builds so if you know you couldn't actually test the car then you had to try and arrange another one and that was easier said than done

KS: So what kind of thing motivated you on your placement

Sam: Erm I don't really know just seeing what I were getting out of it erm that were really enough to be honest

KS: So, do you think the way you were on placement the way you motivated yourself to work hard, do you think that was different to the way you were motivated at university?

Sam: Erm I think so, I mean the money was quite good so the money helped you know you were getting a decent wage at the end of it and you know you're obviously more motivated if you're getting paid well for doing what you're doing. The time you know I could see my flexitime I got my time back anyway so if I'd worked really hard on something and accrued a lot of hours I was just like well it's like a reward for doing it if you know what I mean a lot of the time you couldn't take it anyway because you were so busy but even so it was there to sort of have when you want

KS: Yeah you knew it was coming eventually. So, are you happy with your performance on placement?

Sam: Yeah very happy

KS: And obviously that's reflected in the fact that they're going to take you back

Sam: Hopefully

KS: Is there anything you wish you'd have kind have done differently?

Sam: Not differently no erm I should have maybe looked I was so busy doing things I could have maybe looked about erm sort of they had like a user manual I should have looked at that more, that would have stood me in better stead to find faults quicker but I didn't really have time to do that

because I was so busy doing lots of things I wouldn't change it it's something I could have looked at but I wouldn't have changed what I did

KS: So, you've been back at university a few weeks now do you feel that university is different now to before you went on placement

Sam: Yeah, with work when you've finished work you've finished work and that has taken, 'cause obviously this year as well I've already done a year and a bit back, and it's just been awful trying to get back into that routine erm it's not been very nice but having said that I quite enjoyed last year, last year was like my degree year I probably enjoyed that more after being on placement having a break from it

KS: So, you think it brought your interest back too it a bit?

Sam: Yeah, I sort of see I need a degree to be able to do that I want to do that, so I need to do my degree, so that sort of motivated me to work a bit harder

KS: So how has doing a placement made you feel about going off and getting into your career?

Sam: Yeah I mean you tend to find with people that do placements they either find something they really like to do or something they really don't want to do and they tend to know you don't tend to talk to many people and they say oh I might want to do that no for me I'm lucky enough to say that I really want to do that so it set me up brilliantly I mean I've got a lot of contacts there a guy's left there and gone somewhere else and he said he'd put in a good word for me and it all sort of stems from how much you apply yourself and because I made a good impression its really helped me out

KS: In terms of your employability then do you think that now your employability has improved since doing your placement?

Sam: Yeah definitely

KS: And, in what way is that?

Sam: Just getting industry experience you just can't beat experience erm it doesn't really matter as long as you tick their boxes for the academic stuff like for example have you got a degree have you done this yes it doesn't really matter what you've got essentially I mean it does in some cases and as long as you come out with a high level degree you've ticked a box but being able to apply that to something just having industry experience its worth its weight in gold really you need it essentially

KS: What advice would you give to someone who wants to go on a placement?

Sam: Just apply yourself erm and be yourself you've just you know as long as you put a good effort in and apply yourself to it then just ask if you're not sure you know if you're not sure there's no point in saying you can do it if you can't it just wastes time just you know find out how to do it right and then crack on.

Appendix 11 – Kevin Transcript

KS: So, in terms of your education and career, where are you now and how many months into your degree are you now?

KEVIN: Erm I'm about two years and 3 months now, or something daft.

KS: So, you've come back from your placement, haven't you?

KEVIN: Yeah

KS: Erm and what is it your hoping to gain from the course?

KEVIN: From the course, want to get a first really, erm that's sort of it's basically my ticket to the next bit of my life, so everything else is sort of box ticking and have I got a degree yes, then I can go on and do other things.

KS: Right, erm so what was your overall impression of the first couple of years that you had at university?

KEVIN: It was a lot different to anything I'd done before, like you had a lot more independence so if you didn't want to do the work there wasn't somebody stood over you saying you will do it so, I mean I'm quite self-motivated anyway but, it was sort of erm, it was quite nice really not having that constant pressure, erm yeah I learnt so much and sort of I didn't really realise how much I'd learned until I was on placement and I was like 'oh I know that'!

KS: Oh, right so there was a lot of opportunities to use what you'd learned then?

KEVIN: Yeah so looking back 'cause I've done a placement there when I was at college and at school and so it was a much shorter placement but there was a lot that I didn't really understand, but I was sort of looking at things going 'oh I actually understand this now', it's quite useful so.

KS: Right so it was different to your other opportunities because you've got that knowledge

KEVIN: Mmhmm

KS: Oh, good erm so what was the main thing that you liked about being at uni?

KEVIN: Erm being at uni, probably the social side of it more than anything

KS: You didn't live at uni though did you, is that right?

KEVIN: No, I live at home still

KS: But you used to go out still?

KEVIN: Yeah so, every Thursday we play football, erm and then it got to the point where I was playing three or four times a week sometimes, erm and then we'd sort of go out on nights out and stuff, and all that kind of social aspect of it and then somewhere in between it we'd actually go to lectures.

KS: Yeah find time to squeeze them in, and what was the main thing that you disliked about university, if you had to pick something? Before placement this is, not at the minute.

KEVIN: Before placement, probably the sort of vagueness around certain things so like you'd know there was an assignment coming but you wouldn't really know what it was on, erm and the way I

work is very structured I need to know everything that's happening and sort of, so I can plan it out and go like 'right I've done this by then' and things like that and so it got me a little bit stressed out sometimes when I was like 'I don't know why I've got this assignment to do and'

KS: So, what was the case was it like, did you get a hand book, but you needed the extra information before you could do it or did you not get a handbook or?

KEVIN: It was yeah it was like we'd get the handbook but the explanation that went with it might not have been ideal or just little things like that.

KS: So, what did you value most about your first two years at university?

KEVIN: Erm I think probably the way it set me up for like the placement that I went on, like skills wise, 'cause like I said earlier it sort of, it's all erm stuff that I recognised while I was out in the work erm.

KS: So is it more the technical skills that you're talking about there or like the soft skills.

KEVIN: More the technical skills I think, we didn't really get taught the soft skills you have to sort adapt them yourself I think.

KS: And do you think you did, do you think you picked up many or?

KEVIN: I picked up a few yeah, erm I mean when I started I was really not very confident at all, erm I'll quite happily have conversations with people now, so it increased my confidence a lot definitely.

KS: Erm so before your placement again I was going to ask how you performed academically but obviously we know you got a first so far, erm what do you think contributed to you doing so well at university.

KEVIN: Erm I think probably having a good social group that you could sort of bounce ideas off like when it came to exam time we were all like equally as scared I think, erm so we'd come into uni and we'd spend like six, seven hours a day just like working through past questions and textbooks and this sort of stuff. Erm and then obviously there's sort of my own work ethic and the generic answers there really but yeah like just being able to bounce ideas off people was really helpful, erm I think knowing that your lecturers were there like a lot of them were really approachable, there's only one or two that we didn't fancy going to see.

KS: And why was that? What was it about them that was less approachable?

KEVIN: They were electronics lecturers, and because we perceive a big rivalry between mechanical and electronics students and we didn't like the electronics lecturers that we had so we were like well we should just work it out ourselves see what happens.

KS: So what factors do you think impacted your academic performance do you think other than having your friends and your own motivation do you think there was anything else that impacted how well you did?

KEVIN: I think having erm quite a lot of free time to go away and just let stuff sink in, erm I think I was only in three days a week my first year and not much more than that in second year as well so it sort of all contributed and helped just give me half an hour or half a day or something just to go through and say 'oh I actually understand that now'.

KS: Erm so what aspects of the course did you find most challenging, before placement again?

KEVIN: Erm before placement probably more of the practical stuff, so I've gone through the sort of academic route to engineering so go to college do maths, physics all that sort of stuff, so I got to the hands-on side of things and apart from a little bit of playing about in my grandad's garage when I was little I haven't really done any hands-on stuff. So, it sort of went, we spent about eight weeks or eight Fridays down at Kirklees College and just faced with this big lathe and I was just like 'well what the hell do I do with this'? Just sort of bang some metal in it and hope for the best, but yeah, I think the practical elements were the most challenging for me.

KS: But didn't you enjoy the practical elements? Did you like the challenge of it or?

KEVIN: Yeah I sort of, it's always something that interests me 'cause the theory is kind of it's alright but unless you can physically see what your applying the theory to its sort of, to me its seems a bit pointless perhaps. I noticed when I was on placement as well everyone seemed to be of a similar mind set they'd all like (inaudible) on the desk that they'd been down and 'I've got this bit because I'm working on it' and stuff like that.

KS: So, if you did find that you had many challenges during those first two years what was your method of dealing with them?

KEVIN: Pretty much asked the guy that knew what he was doing.

KS: So, is that the specific lecturer for the bit you're doing or?

KEVIN: Yeah there's two or three of my friends that have been on my course that I knew from school, erm who sort of took different routes from school and then came back when we were at university, and sort of they went down the practical side of it and so we bounced ideas off each other and helped each other out in that sense, like he's good at the practical and not so good at the theory and I'm the other way around so.

KS: Ahh right so you make up for each other. So, my next question was what was your relationship like with the other students, so that's one part of the answer isn't it erm is there anything else?

KEVIN: Erm I think I've got quite a small social group but we're all fairly like-minded, there's about two-hundred people on our course erm so you sort of you recognise people you know just like friendly nod in the corridor or whatever but erm yeah, I don't think I really speak to that many of the other people on my course, probably about twenty of them.

KS: So, I was going to say do you think your friends had the same kind of attitude and the same kind of motivation to their studies as you did 'cause like you've said you've all kind of worked together, do you think they were all as motivated as you were?

KEVIN: I think so I mean, you sort of, quite often it would be me saying 'do you want to meet up and go through it' but, quite often it's like everyone's thinking 'I wish I had someone that would talk me through this or go through it with me but it just sort of takes one person to just suggest it and everyone's like 'oh actually that's a really good idea' so I think that once they've had the idea put in their heads a little bit they were pretty keen for it.

KS: Do you think it would have been a different experience without them.

KEVIN: I think I would have really struggled, in second year especially, erm some of the modules was, like we had some really hard maths in it and even I struggled a lot, and sort of between about eight of us we managed to figure out the answer to one question, and we were just like staring at it blankly for ages and we were like 'erm nope'.

KS: And then what were your relationships with the lecturers like we've established that there's some lecturers that you wouldn't go to so did you find you were able to approach the other ones that were more approachable, did you go to them often or?

KEVIN: Yeah erm I mean there were some lecturers that were just, they were absolutely off their rockers like, but they were they really engaged with us all, erm so I absolutely loved, having some, like being in the lectures with some of them and you'd sort of you'd sit there thinking 'oh he's going off on a tangent again' but everything he taught sunk in. Erm but like I think most lecturers I've had have all been approachable, I quite often get questions and like little bit of maybe little worries erm and I just sort of send them an email and go down and see them and they're all usually pretty happy to see me or you know like if they're not available or whatever they'll try and sort it out another way or point me to someone who can.

KS: Right and then what were the biggest learning opportunities you had in those first couple of years do you think? What did you learn the most from?

KEVIN: Erm probably going down to the college (KS: The technical?) the technical stuff yeah, erm 'cause it was sort of, it was, especially thinking of how things are made 'cause you can develop a massive design for something and there can be eight or nine different ways of making it and it's sort of, I didn't really think about it before I just thought oh well you design it and someone goes and makes it and it's like well then you get the finished product but how it actually got to that step where you had the finished part it was quite interesting for me and I found it really useful when I was on placement as well, erm 'cause when I designed something erm I looked back at what I'd done in my first and second year and like 'oh actually yeah this is what we've got at *Placement organisation name* but if we send it somewhere else it's cheaper and they've got this tool and so we can do it that way instead, so it was quite useful from that just to see (inaudible).

KS: Erm and then how well do you feel that university prepared you for placement?

KEVIN: Pretty well, like I mean, in term of academic ability it set me up really nicely but then the placements unit as well they sort of, some of the lectures weren't necessarily that applicable erm 'cause I was quite switched on and did my applications right at the start of September and I was like got to university and it was 'don't do any applications yet,' 'erm sorry'. So erm yeah, they've helped me through a lot sort of fixed my CV up and gave me a bit of advice on what to do for interviews and things like that, so it was quite useful having that bit as well.

KS: Yeah like they were a good source for you? Erm right so moving on now to your expectations of placement, what were your expectations?

KEVIN: Erm I don't think I really, I didn't really know what to expect, erm so like, the main reason I chose to do a placement, is 'cause I thought well it will open some doors for me it's a year that I can put on my CV and things, erm so it was quite a nice surprise when I realised I was getting paid for it, yeah I just wanted to really see what a graduate engineer would actually do 'cause sort of blindly going it to like 'I'm interested in how things work so engineering's a good route for me, I'm good at maths and physics and stuff so like I just applied for UCAS and chose engineering and erm still didn't really understand what you actually did when you graduated like so I mean there's so many different career paths you could take and having the rotations was quite useful erm 'cause I could see some of the different types of work you could do.

KS: Yeah. So, do you think that helped you then pick what your wanting to go into next or

KEVIN: Yeah definitely, it's erm definitely focused me a little bit.

KS: So, what did you do in preparation for your placement?

KEVIN: Erm if I'm honest not all that much just sort of I knew I was going on placement from December like the year before I went erm so sort of it let me just focus on like studying and getting the grades I needed to go on placement, so I did a little bit of research about the company I was working at but beyond that I didn't really know what else to do. I was actually, we'd gone out for drinks when I accepted my job and I got a phone call off an unknown number like 'Hi this is so and so from the company' and I was like 'oh erm'.

KS: Did you seek any advice off anyone before your placement?

KEVIN: Erm I did a little bit 'cause I know a few people that worked there and we got a list of fourteen or fifteen different departments we could work in, erm and we sort of had to rank them in terms of what we wanted to do and they sent like a little information pack out which some of them sort of were quite vague erm so I got a little bit of inside information about which ones would be the ones to avoid and which ones might give me the better opportunity. Erm so when I got there and found out particularly the ones that I'd been told to avoid what the students were doing I was sort of 'oh I'm so glad I asked'.

KS: So how do you know the people that worked there beforehand did you get the job, did you apply for it because you knew people who were there?

KEVIN: Yeah it was just like through friends of friends and things really. Like one of the guys from my course his girlfriend's uncle works there. Erm so it's sort of strange links like that. And you just sort of approach people.

KS: So, I take it you found that out after you applied for it then you kind of discovered who worked there once you got the job?

KEVIN: Yeah I sort of you know you're all asking, 'where are you going on placement and how's your search going' and 'cause I'd found it quite early on it gave me a chance to do all the searching for people that might work there and things.

KS: So that's good prep then you did prepare! So, in hindsight is there anything you wish you would have done to prepare or are you happy with how it went regardless?

KEVIN: Erm I think in my first sort of month or two I really struggled sort of getting into the mindset of you finish at 4:30 so there was some nights when I was still there at 7 at night and my manager looked at my clocking in and clocking out times and was really seriously telling me off for being there too late (KS: For working too hard?) yeah it was a new one to me that like 'I've been doing this for however many years' just work 'til it's done and so it took me a while to get into that so I think maybe if I was to do something like it again I would get into the mindset a little bit quicker than maybe two months into my placement.

KS: So how do you feel overall about your year on placement?

KEVIN: I absolutely loved it, yeah erm with everything you're going to have bad days but the good days massively outweighed it and there was that many things outside of work like they had erm triple E C which is like voluntary work in the community and I think your only supposed to, your allowed 4 hours, I think they encourage us to do a minimum of four hours, I ended up doing about sixty.

KS: Of voluntary work?

KEVIN: Yeah it was just like, we kept getting emails, like sign up for this and this and this and I would ask my manager 'yeah that's fine'.

KS: So, what made you want to sign up for it all?

KEVIN: Just 'cause it was something different and every time you did it you were working with different people from all across the company. Erm so there was one I did down in Birmingham, that was like a two-day event at the N.E.C. and we were with people from all the different business units so there were people from I think eight different sites across the UK and we all met in Birmingham to like run this exhibition and we did all the planning and this for it before hand and it was a really good two days. Erm it sort, and it helped quite a bit as well because like one of the people that I met down there when I rotated to my next placement then I actually ended up needing to contact them to get some information from them so it was sort of a bit of networking as well.

KS: So just concentrating now a little bit on the transition from university to placement what did your first few days of placement feel like?

KEVIN: Erm pretty daunting like not sure if you're doing it right or like it takes me a while to get used to new environments and I'm quite shy and don't want to ask too many questions like you don't want to be the guy that asks a million questions erm like drives your boss up the wall kind of thing so I'd be sitting there not really sure what I was doing and just sort of clicking and hoping I'd find the answer erm and then eventually sort of "oh I've been doing this a bit too long now I should probably go and ask" I'd sort of try and bunch two or three questions together and try and find where my boss had gone or whatever but yeah it's quite daunting because you're going into a big company that everyone else there seems to know what they're doing and you find out that afterwards that sometimes they're about as clueless as you erm but I think not knowing anybody as well was quite a big thing for me sort of the placement students all by the end of the year had all got really good friends and stuff like we went on holiday about 8 times so especially with me starting a month after, about half of them had started erm so they'd already started forming they're little social groups it's like you're a bit of an outsider

KS: So, did you find then as you went through that you were able to adapt and ask more questions?

KEVIN: Yeah so I think it was the whole getting used to the professional environment kind of thing like not having to ask to go to the toilet things like that erm so I think getting your own independence and I wasn't expecting that I don't think I was expecting the sort of you would be accountable to somebody most of the time and you had to tell them where you were at all times and stuff like that erm so my boss was sort of giving me emails like you don't have to tell me where you are, you don't have to ask permission just go do it. Erm so yeah it was quite difficult I think in those first few days but by the end of it I was quite happy and comfortable.

KS: Did you feel like you were treated like a placement student or did you feel like an employee, like the same as the rest of the staff?

KEVIN: So the first few weeks it did feel like that because you know like you're always asking questions you don't know any of the answers and just like little things go wrong and you think it's the end of the world because your computer crashed and you don't know why and so but as you go through the year and people sort of you get a bit of a reputation because "oh he's really good at this and that and the other" and all the managers they say they didn't talk between placements but they clearly did erm so sort of I'd get into my next placement and they'd say oh I've heard things about you I've heard good things and so it was quite nice just getting little bits of positive feedback when

you started your next placement and you can hit the ground running kind of thing erm but I think by the time I'd gone into my second rotation I was getting treated like on a level playing field erm it was just that initial three months where I was sort of really unsure about everything and so they were kind of training me up so they kind of had to treat me a little bit like a learner.

KS: So, with your rotation how did that work, did you start in one place and move around the company?

KEVIN: Yeah so at the *location name* site I think there was about 2000 people on the books there something crazy like that it's a huge company all different departments and they all deal with different aspects so like they specialise in certain areas like aerodynamics or erm there was loads of projects teams working on certain frame sizes of products and things like that erm and we'd go around four of them during the year so we'd spend about three months in each erm.

KS: Did the same placement students come with you each time?

KEVIN: Each department had like 1 student so you'd kind of swap and change between everyone, yeah so for the first one there was a bit of an overlap like with us all starting at different times they wanted to try and get us all to have a decent amount of time in the first placement but then get us all to move at kind of a similar time erm which I think logistically must have been a bit of a nightmare for them erm but by the end of the year like the last two we sort of all swapped together so there wasn't much of an overlap there.

KS: How different did you find placement from university?

KEVIN: Really different, sort of not having the big waits in between doing things was quite nice there were some days where you'd have lectures and you'd have one in the morning and then a six hour wait until an hour in the afternoon erm whereas you'd work through that six hour wait at work and you'd go home but I think the biggest difference I noticed was you could switch off when you go home like there's always going to be little bits on the back of your mind but you didn't have to be doing work at home kind of thing which at university you do erm so over summer this year I've been a little bit reluctant to come back to that I quite enjoy having my weekends.

KS: (Laughs) right so could you tell me about your role and responsibilities?

KEVIN: So at the start I was working with the project team erm and so my main role was to sort of develop a product catalogue for them using VBA and Excel and so I sort of had to pretty quickly get to know all of the parts and different configurations and everything and there was quite a lot of different bits and people kept changing their minds about what should go into it and so it was quite a challenge for the first few months a lot of the... you get an idea about what actually went into a turbo charger and things like that. And then I had little side projects so I was writing erm shipping requests and erm one of the bits I got they were testing some of the new parts erm so they manufactured off site then they came in to us then we had to analyse them and then ship them to somebody else to fix them up who then shipped them to our company in America to machine them and then they'd come back to us so sort of going here there and everywhere and so I was sort of keeping track of that of where all the parts were because I think we had about eight batches go through and some of them got held up at various points or one lot overtook another lot at some point at it was kind of like "well how's that happened?" ringing up the supplier going "well why have you still got that one and not that" so...

KS: Did you find you were given more difficult work as you went through your placement?

KEVIN: Erm as it went along I got sort of the more fun jobs definitely erm I think I enjoyed them more because I knew more what I was doing erm but I think in terms of complexity I was probably my first placement was quite simple tasks in comparison to the rest of my placement from the second one onwards it was sort of fairly similar kind of jobs so

KS: Did you find any of that challenging?

KEVIN: Yeah definitely.

KS: So, what did you do if you faced a challenge on placement, what were your options?

KEVIN: So again go and ask the guy that knows, the biggest challenge I had I think was the design work erm because we used at university we used solid works for designing and in industry a lot of them use Creo which is sort of much more powerful design software but its a lot different erm then like the company had set up a load of like map keys and short cuts to get stuff done so it'd take you a day to do something and you could click three buttons and it would do it for you in like twenty seconds so I was spending a day doing this drawing and someone said "oh have you not seen this map key and that one" and it was "no" it was like "oh yeah you just do this this and this " I was sort of sat there "oh great that's a day gone" but yeah one of the designers showed me a lot of tips and tricks that they had it was quite good as well because it meant that I could use them in my other placements and I was actually teaching full time employees about some of these map keys that they didn't know about and stuff. So, I was quite happy that I'd gotten the chance to do that early on in my placement.

KS: So, did you find that your training changed as you went along? Like you were shadowing at one point weren't you but how did it go in terms of start to finish?

KEVIN: Erm so it started off like with me shadowing somebody and so they'd do three or four drawings and save the last one for me to do and they'd be stood over my shoulder like making sure I didn't delete everything I'd done from the last three hours or something erm but then as I went through the year they'd ask me to do something and "yeah, yeah no worries" just come back in like two hours time and they'd sort of go through my drawing and make little changes that I had to do. Erm or they'd go through whatever it is that I'd done and just make slight adjustment so rather than being stood over me for the full two hours they'd just were they were getting on with what they had to do sort of leaving me to it.

KS: Do you think anything could have made your transition to placement in the initial weeks any easier for you?

KEVIN: Erm I think just having, maybe some ground rules kind of thing it's probably not the right term but just laying out you do go home at 4:30 and stuff like that erm 'cause I sort of I didn't know what to expect from my placement so I just wanted to make a good impression so I just carried on what I'd been doing at uni erm if somebody would have just come up to me and said "look this is what you kind of actually need to be doing, you're not expected to stay in till whenever or you're not you don't have to do this you can do that" it probably would have made it a bit easier for me I think having a lot of training as well because they use an unbelievable amount of acronyms like there's a I think there was like an unofficial spreadsheet that someone had created that's still missing half of them erm and there was about 5000 on there.

KS: So, they used them and just assumed you knew what they were talking about?

KEVIN: Yeah so they started going on about these TLA's and I was like " what on earth's a TLA and it was three letter acronym it's like so you use an acronym to describe something that no-one knows what it is erm so you've got so many of them and they're repeated so depending on which department you're in it depends what it stands for but sometimes you're talking in a meeting you'd be sat there in a meeting having a full on conversation in acronyms like "i know none of this"

KS: Oh god, so in the first couple of weeks what did you find to be the biggest source of help for you?

KEVIN: Erm so as well as a manager in each rotation we had an overall placement manager erm and I probably went to see him about twice a week in the first few weeks erm just like a big long list of questions of stuff that I needed to well I didn't need to ask him but I wanted to know the answer to so he was probably one of the biggest sources and then just talking to other placement students erm like especially the ones that had been there like a month longer than me and just sort of saying well what did you do in this situation. The big thing that we had was our laptops and stuff they were just going through the company changing everybody's laptops upgrading them erm and I started just in time to be one of the first in the company to get it so you were asking people in your department who were on old ones who had no idea what the new ones did so I sort of had to go to the other placement students and go "does your machine do this?"

KS: What was it do you think about the placement manager and the placement students that meant you were more able to go to them than other staff, because you didn't really want to ask them questions at the beginning did you?

KEVIN: I think it was the fact that like it was the placement managers in the back of my mind I think it was my placement managers job to answer the questions that I had he was you know looking after us for the year whereas my rotation manager had their own stuff to do and they didn't want to be bothered by a mere placement student and stuff like that.

KS: Do you think that was actually the case or it was just your thought process?

KEVIN: Looking back it was just my thought process but when I was in the situation it was definitely like oh god I can't ask her that she'll be annoyed.

KS: What was the atmosphere of the placement like?

KEVIN: Well it sort of varied by department so there's like a rule that floor one is unbelievably quiet there was I think there was one day on there where I listened to the air conditioning going all day it was just nobody seemed to talk because they're all I don't really know everyone's happy there, but if they want to talk they go into the corridor and talk which I couldn't get my head around erm so in each department it was different so when I was up in the (*building name*) building erm they were really loud I mean that it was going to a party atmosphere every day erm so as you went round the company it was a totally different atmosphere and...

KS: Did it feel like a different place of work in each place or?

KEVIN: Yeah you'd sort of you'd be dealing with people in most of the other departments in each rotation but it did feel a lot different in each one like the first one was a big project team erm but they were all working on the same one and then the next one was sort of two people working on a specific part within an entire floor of designers erm and then I was out in after-market so they were doing all the returns of the things that had broken so they didn't really associate with any other bits of the company but I think there was probably about 15 of them so there's quite a big team again

and then went to a much smaller team that were working on a massive range of stuff erm each rotation was a lot different to the last.

KS: Did it feel like a large company with it being quite broken up?

KEVIN: When I was on my side of the road it felt quite small 'cause you sort of you knew everyone on the floor you were in and stuff whereas as soon as you went over the other side of the road in planting you'd see a new face every day and you were sort of "how long's he been here?" he's like covered in oil and stuff so he's obviously been here a fair while but and so you did you recognise certain people that you saw again and again in every part you went in and there was some bits like my last day I was still recognising new people.

KS: Were you hoping for a big company, did you have a preference or

KEVIN: I didn't really think about it to be honest like, I mean it got to a point where I was just desperate for somebody to say yes I'd sent all these applications out and got like either nothing back or rejections and things erm I mean a lot of them I did apply to big companies erm just because I knew they all had placements because with smaller companies they tend to not have as many opportunities and things erm so I just thought well if it's a big company I might stand a better chance.

KS: To what extent were you happy with how much work you were given and the kind of work you were given?

KEVIN: Erm I think it, it was kind of up and down really like some departments had big expectations of the amount of work that they wanted me to do and other sort of struggled sometimes for work for me to do and you could sort of you sometime felt like you were perhaps doing something to fill an hour or two while they thought of something else for you to do but it was generally pretty decent.

KS: I take it you preferred then to have more work to do?

KEVIN: Yeah I preferred I mean ideally I'd like just yeah you know just a nice steady work flow but I think given a choice between getting a bit stressed because you've got a stack up here or twiddling your thumbs I'd rather be a little bit stressed when I was sat twiddling my thumbs I'd sort of be a voice in the back of my head going "you shouldn't really be doing this you're getting paid what's going on?" and so you'd go and pester your manager and they'd go "we've not got anything for you to do" so I was trying to but so it kind of made it a little bit ok in my head but at the same time I was still a little bit I shouldn't be doing it but...

KS: So, say you were given a new task to do how did you go about doing that task initially would it be a case of shadowing or?

KEVIN: Erm it would sort of depend on what the task was like right up until my very last rotation I was still learning new programmes and things like that erm so it was quite sort of dependent on what it was they were asking me to do like I'd quite often give it a go first and see if I could work it out particularly towards the end of my placement but there was some like we used Ansys and there's like a million and one opportunities to push the wrong button and send it off doing something it shouldn't and so he talked me through that one sort of step by step as I was doing it and I was sort of scribbling down notes as I was going through and stuff but yeah I think that generally it just depended what it was they were asking me to do.

KS: Did they know what you were capable of doing, did they ask you what you've done before or was it more a case of we'll give him this and see how he gets on?

KEVIN: My last department did the other (inaudible) my last department basically in my first two or three days there they asked me to do an entire presentation on my placement to date and everything I'd done and what I was interested in so it sort of let them get a bit of an overview to me and then they kind of had a kind of counter presentation of similar things for their department and it got me kind of settled into things a lot better I think.

KS: Would you have preferred an introduction like that throughout?

KEVIN: Yeah I think so sort of just being able to see what it is they actually do like my first week of the company I was going to all these meetings to try and get my head around it and you'd be sat and they'd be talking for two hours and you'd come out even more confused than when you went in, but with my last one because they'd set out exactly what they were doing and what the different projects were you could sort "ahh right so this bit that he's talking about here is for that component and things like that and so I think it might have been because I was more settled into the company as well but just having that was definitely an advantage.

KS: What was your relationship like with your colleagues, did you get on with them all or?

KEVIN: Yeah erm, there was one of my managers that I thought I got on with and then I got my end of placement feedback and got a little bit slammed in it, erm so I wasn't very happy about that but I didn't let it sour me too much I went to I went on holiday that weekend anyway so I cheered myself up and started my new placement on Monday erm so it stuck with me a little bit and what he'd said I could kind of see why he was saying it because like communication was a bit of an issue for me like I was fairly quiet erm but he'd scored me a lot lower than I was expecting so I sort of made a conscious effort to get my managers to tell me what I needed to do to improve and get regular meetings with them and just pester them for feedback early in my placement so I could bring it up a bit and make changes.

KS: So how is it you got feedback between placements is that something the company does?

KEVIN: Erm so each rotation they had to fill out about 20 questions and they scored you from one to ten on like teamwork, technical ability all that kind of stuff and so at the end of each rotation you'd have a meeting with your manager and they'd talk you through what they'd scored you and why erm so and they collect all the scores at the end and then rank you from 1-14 and I think it was the top 3 got sponsorship for the end of the year so it was kind of you were sort of in competition with everyone else without actually competing.

KS: What is it you mean by sponsorship?

KEVIN: At the end of the placement 3 people got given I think it was £1500 just as like erm sort of a gift I suppose and if there's a job going for them when they graduate they can go back and work at *placement company name* it's definitely worth going towards, so I just missed out on that but in some respects I was kind of glad about it 'cause two years is a long time and I dunno what's going to happen in the, the next two years so I was little bit gutted when I got told "oh you've not got sponsored" but I thought about it and actually it's not necessarily a bad thing

KS: Was there much scope for learning together and collaboration with your colleagues or were you mainly working individually?

KEVIN: Yeah so they had erm a training calendar during the year so there was all sorts of different things going on erm like each department usually had something they could contribute to the calendar so they'd give you an update about what it was they were doing or what the latest technologies were and how they all worked erm and so generally if you knew somebody that had some information you wanted or knew how to do something that you didn't you could usually send them a quick email and go down and see them erm and so it was its pretty good because they all I think they're all of the mindset that we're all working towards the same thing so we might as well help each other out so it was quite good.

KS: In that sense was it similar to your university experience with you still having friends to work with?

KEVIN: A little bit yeah, its sort of like a much-expanded social group erm so yeah it was quite good that

KS: How comfortable did you feel on placement overall.

KEVIN: Yeah so at the start I was little bit unsure of myself but towards the end I was wishing I didn't have to leave erm definitely got happier in my placement as it went on like doing stuff like football with them during the week like they had like a sports and social club so you pay like £1 a month or something stupid and you can just like go on like subsidised football and sports and you can do like trips away and stuff like that so it was quite good sort of you'd meet other people and just have a laugh with them and you'd quite often be able to go for a drink with them and sort of see the other side of them outside of work

KS: Did you have visits from academic staff?

KEVIN: Yeah, they come twice in the year

KS: And how did you find them?

KEVIN: Erm they were kind of they were alright I wasn't too sure that the first one I wasn't too sure what I was supposed to be doing for it or anything erm the second one was more relevant I think because it was kind of at the time when we were supposed to be choosing final year projects so I was kind of got my manager sat down and we had a conversation but I think it was erm it probably would have been more advantageous if I'd had issues but I wasn't really having that many issues so. It was good that he came to see me because he's now my final year project supervisor as well, so I get a familiar face.

KS: So, did you use it more to help you in preparation for returning to university than helping you on your placement?

KEVIN: Yeah, I'd say so.

KS: Do you think that when they came it did have any impact on your placement or?

KEVIN: Erm not all that much really so I think it just reminded me that I was going back to university at the end of it erm just like a "hi we're still here" kind of thing but I mean because we had 2 or 3 reports to do during the year as well erm but the time he came were kind of just as I was about to start writing them so I ended up coming down into university anyway getting him to look at it then. My placement supervisor is really, really helpful but the times of the visits could have been a little bit different but then you have to fit it around what they're doing at the university as well.

KS: The reports that you had to do, did you find that they had any impact on your placement?

KEVIN: So one of them was a company report so you had to do a lot of research about the company and what it did and all that kind of stuff and erm I wasn't too sure that that one had actually taught me anything because it was all information that I kind of knew already so I was just kind of typing it in my mind for the sake of typing it up but the second one was quite good because it was like a learning diary so you kind of everything that you'd done on placement you wrote down and erm sort of reflected on what you'd learned from it and what you'd do differently so that one was definitely worth doing

KS: Was that one that you were supposed to do as you go along or was it something you do at the end?

KEVIN: So, you were supposed to do it as you go along but I know I wasn't the only one who left it until a good few months into the placement before I actually started it and was like "oh hang on I better make a start on that one now"

KS: Why do you think that is?

KEVIN: It's sort of, when you're at placement you forget about university and you're that focused on what you're doing at work that you forget you've got other stuff to do as well like it got to a point where I do a lot of stuff with cadets and I was forgetting to write applications for things that I thought I had to do because when I was at university I'd plan it in like I've got a Wednesday morning off so I'll do it then whereas when I was at work it was like I finish at 4:30 I can switch off for the night. And particularly when you think uni's 10 months off its not exactly at the forefront of your mind going oh actually I've got a deadline in March

KS: So, do you think it's still a good think you get given those to do or would you be better off without?

KEVIN: I think the second one definitely not too sure on the first one

KS: How applicable did you find university knowledge to placement? I take it was just kind of the technical side of it as we were saying before?

KEVIN: Erm the maths side of it I didn't use any of like I've really struggled coming back to uni because I've not done maths for a year

KS: Is that just because of the placement you went on or?

KEVIN: Yeah it was just the type of work I was doing erm I mean a lot of it was design based or analysis on computers sort of thing so the maths side of it didn't really come into it erm the theoretical the understanding of how things work and what two things you shouldn't put together before they break all that kind of stuff was quite useful from university

KS: How often did you find you were using stuff from university?

KEVIN: Erm in my first placement I don't think I used all that much but certainly in my second one and fourth one where I was doing a lot of design work the stuff I learned about how to do drawings was very useful coming into it and stuff like that

KS: What do you think were the most valuable skills that you learned on placement?

KEVIN: erm I think just getting experience of different computer software erm we didn't do that much kind of on computer analysis in first and second year erm and coming back to it there's a lot of

computer analysis and learning about I think we've got three new programmes so its quite good to have that little bit of experience getting used to new stuff.

KS: So, it set you up ready for going back?

KEVIN: Yeah

KS: Do you think you've changed at all as person since doing your placement?

KEVIN: I think so yeah, certainly a lot more talkative erm and I've also got a taste for going on holiday a lot more now, but I think yeah, I've definitely changed it's just hard to describe how for me but maybe a little bit more grown up in the way I think perhaps

KS: What did you enjoy most about placement?

KEVIN: Erm I think again the social aspect of it same as uni I quite enjoy getting out and doing things interaction with the other placement students was really good my sort of one bit of advice to the guy that replaced me in my old department it was just like say yes to anything, if the placement students offer you to do anything just say yes you'll have a really good time erm but yeah like I think the variety of work was good and my third rotation kind of had in...

Appendix 12 – Antoni Transcript

KS: Can you tell me what course you're on currently and whereabouts you are on that course?

ANTONI: Currently I'm graduate

KS: Oh, so you've finished?

ANTONI: Yes, this year erm and I'm working engineer in the company where I used to work on placement.

KS: Oh, excellent so they took you back did you get a sponsorship, or a job offer at the time or has that come since?

ANTONI: Well erm no they just offered me a job after my graduation erm I needed a job I was desperate because my money was running out so yeah I just took it erm I'm working for as a mechanical design engineer erm the company is a pretty big corporation erm with separate professions basically the company works in money handling, cash handling so the company the site based in Manchester is responsible for coin recycling at the moment we are working for *company name* who is the provider when you go to cash machine and you withdraw money you will see *company name* so this is one of the biggest companies providing equipment so, so that company hires us as a contractor to design a new mechanism for their machines so erm if you imagine a self-checkout in *store name* erm like that cabinet with computer it's probably about 20 different devices inside it so there's a different device for erm accepting note for taking them from one part to another there's different device for erm scanning for counting there's a different device that's responsible for coins erm so we are designing the coin part, we've got a contract for new machine which will be all over *store name* in 2 or 3 years so lots of plastics involved because they want things to do cheap plastic is more endure more stable it can do more things cheaper erm so we tend to replace everything with plastic

KS: Erm ok so you were doing mechanical engineering and now you've finished what made you want to go into mechanical engineering

ANTONI: My motivation well it was a sort of let's say cold calculation 'cause someone some years ago told me do what others don't want to do and that's my sort of way of doing everything a couple of years ago there was a need for engineers probably still is so yeah I just rode the wave it isn't like I was always passionate about engineering my initial idea was sort of like erm a company representative I was sort of into sale and marketing but more likely but there is business student overload they are struggling to get a job so erm I wanted to erm finally sell somethings that are not accessible for others so I could sell let's say engines for boing or sell coin accepters all over the world you know have an access to resources that not average person can because engineering can be still science person but science person cannot be engineer erm so that was the logic and erm in the mean time I got into design which is probably still far away from my eventual goal but that's how I see that the first step now I'm designer probably at some point I will move into project engineering then I will see I supposed to be a rock star but I probably am too old

KS: So, I'm going to talk to you about university before you went on to placement, so how did you find university before you went on placement so those first few years

ANTONI: First few year erm it depends university back in Poland or university in *UK university* because I've experienced both

KS: Ok so what did you do in Poland

ANTONI: I was doing materials engineering

KS: Oh, so you did 2 years in Poland and then came here and did

ANTONI: Yes I did 2 years in Poland then I had a chance to come here which cost me a sacrifice of 1 year because of material differences so I had to agree to repeat one year so I came here as a top up on second year erm back in Poland probably was I would say pretty easy erm first of all I was on the first year erm and in Poland education system in many places erm, UK is based on an exam so they give you topic and they give you erm... you bring the answer, erm you can probably face on your lectures that erm there's stuff they will tell you but they won't tell you about everything you have to

KS: Independent study

ANTONI: Yes was important much more module much more its more dense erm but there's some you probably have to use it, but in Poland probably less independent erm so in Poland it was easier because first of all I was back at home so I didn't have to care about my cooking I didn't have to pay for my accommodation so I had time to do other things like I was the head of students head of students association back in Poland so I was studying on a very new faculty it was materials engineering I was second year since they actually established it so university over there had a deal with *UK university* that they would exchange students from marketing so one day I was sitting in my class and woman and man came into erm she started talking about in English talking about studying at *UK university* erm and at the end she said in completely fluent Polish if you understood 50% of what I said you are ready to study over here yep that was pretty much it because well I've been studying English for quite a while and I've been working in Greece before so it's like I was the only one who wasn't afraid speaking English so basically I was the only one who said alright I would come so following the rule I said before always do what others don't want to do

KS: So, is that why you came just because no one else would?

ANTONI: Yes, pretty much

KS: So, did you do one year over here and then a placement?

ANTONI: Yes

KS: Yeah so how did you find that?

ANTONI: Well I found it was pretty harsh 'cause yeah first of all erm I could probably imagine also the way how its money over here, over in Poland its university for free I'm paying over here so erm probably UK you can relate it to business making as well you cannot lie it is business so from marketing point of view from the way it was described I expected it would be easier than it really was erm it wasn't that easy I was sort of struggling for everything having to sleep in pretty shit conditions erm but it was a process of improving things so I met quite a lot of mostly foreign students erm and well we are actually still friends we are still living together after graduation so yeah its erm one day I'm going to write a book about everything that happened over here. OK so how it was erm I was the only Polish on the course so it was good that was my sort of point as well that I'm not going to look for people from Poland because I can find them in Poland we see many, many other countries are good as well but if 2 polish people actually meeting each other than straight away then start speaking polish even if there is other people around then they don't understand so yeah it just wouldn't be good for my English probably erm so second year was hard I was working part time in *shopping centre* and studying being honest I was pretty sure that I would

fail in the first year over here erm it happened that I actually got a second class yeah it wasn't bad well then I was there was the time applying for placement I sent about 60 applications erm I had 7 interviews all of them failed the day actually that I had my last interview I actually came back from the first day at work at McDonalds which was erm which was actually my last resort plan that's ok I'm going to try and work for McDonalds part time and finish my final year

KS: So, were you just going to skip the placement just not do one?

ANTONI: Yeah well I was it was pretty late it was June already and well I applied for all I could so I just didn't believe that I could get it so erm I didn't care if I get any more because I was sort of secure in my McDonalds job so I came for an interview and that's what got me that interview because I didn't care yes I was relaxed and erm well I just wanted to know what they are doing so was more interviewing them than the other way around I just we are not going to meet again so tell me what you are doing erm and that's what got me job and placement erm again. I had a pretty constrained budget so I had to save half of my salary to just to survive another year my final year so it was again a pretty tight budget but more than on my first year erm so it was a small improvement so again I had to sort of rent pretty crap condition accommodation, so I just prefer to stay at work than going back home

KS: So, do you think having less money made you work harder because you were staying at work?

ANTONI: Definitely it's like erm I came from *inaudible* so it was like well I can relax 'cause there was no way back so erm I've got long I paid for the study so erm it like failing is not erm so sort of the same attitude was on placement like I think I made good impression and it seemed that they liked me over there erm that sort of contributes also to my final project 'cause erm I found myself project in the company and I sort of stick to the project well there a problem they gave me a job to erm one of the biggest customers complained that the device was too noisy so I was sort of searching for a month at work erm when I found out that adding grease would solve the problem and its cheap for them they were pretty happy about it because it's cheap so erm so I took that whole problem as a university project just to go in deeper as I found grease was the causes of the noise and what caused vibration and going quite deep into so erm yeah I got the best project award for all engineering students yeah so erm I've been actually hired I've got job offer starting February so I knew I got job before I actually finished before I graduate which again I wasn't sure how my studies would go because engineering is not easy so I was expecting to well worst case scenario 2:1 my contract my minimum degree would be 2:1 so erm under pressure but I told one of my senior engineer that I would be better than previous placement student and would bring a first

KS: Did you do it

ANTONI: yeah erm so erm then came June graduation I was a bit depressed 'cause it's like erm I knew I was going to that job but in the meantime I got my first class I got my IMECH the best project award so it's like and I've got one year of experience so erm a deposit of good thing that can get you a better job so erm well I was sort of like damn I suppose I could apply for those big guys and get like one of those dream placement graduate jobs but well I had to pay for my bills so erm

KS: So, you didn't try and get one

ANTONI: No, I was also sort of tired final year was really harsh sleeping in the library and all those things

KS: Nothing to stop you in the future though is there?

ANTONI: Oh yeah I just sort of postponing it I know that I'm not losing anything staying at the company because one or two things that I actually have got to do is huge compared with other companies is much more because the big companies are very specialised so they keep you doing one thing at once, over here I'm doing I wouldn't say everyday but every week I'm doing something else I'm doing 2d drawings and things like simulation so it's a very pretty rounded interesting. Yesterday I had a guy from Geneva erm that he was working for some prototype and now he's quitting his job I guess he's going to other company so he's sort of like he's passing down his knowledge that he learnt about his prototype so that seems to be another project

KS: That you're in on doing?

ANTONI: Yeah so erm so my point is yes initially I didn't want to be hardcore engineer but it's sort of like satisfying, people could say secure job because you are getting into practice and you will build up experience that just cannot fire you because you are joining group who can do those things

KS: What did you most enjoy about university before you went on your placement?

ANTONI: What did I most enjoy about university? Well probably the people that I met the friendships, cooperation, and that's what I would say is the most value erm it's like erm I'm not sure how local students would reply on that but I learn as an international person it's like you have to learn being self-reliable erm and also self-learning based education system is part of it as well but probably as international that is amplified erm yeah it was a good experience hard but good

KS: What did you least enjoy

ANTONI: Coursework and lectures I think that engineer in general we sort of stuck to an obsolete educational system it's like erm people don't listen on lectures we got about a 20 minute attention span before we naturally switch off also I read somewhere that increased carbon dioxide in the room just shuts you down you get sleepy because everyone wants to cut costs we just don't create enough ventilation there's no air flow so if you get more than 3 people in this room so then you're getting loads of coffee so it's like for me a vicious cycle of disease so erm yeah lectures well most of my things I learn from videos Youtube was very helpful yeah it's like you're not able to follow the lecturer or understand everything so I think that most of the stuff you can just record it so you can go back

KS: So what kind of lessons did you like at uni?

ANTONI: I liked design erm see it's like erm all of them I you see I saw value of them because they're all quite technical I just didn't like the way they are taught, they are taught where I had to figure out what the lecturer is actually talking about I had a simulation of aerodynamics simulation of stresses so erm I would say it was my most favourite module because if I was saying most favourite module people are saying most favourite module is easiest to pass but the hardest ones are the best because no one else can do it

KS: Did you do anything to prepare yourself for going on your placement?

ANTONI: Well probably not even if I could I would not have money for that there was not very much preparation I tried to erm read something about it in modern diction modern classics that was there accommodation the people who actually got me on board erm but not really not any special preparations well university provides lectures about how to write C.V how to go through interview so it was sort of part of preparation

KS: Did you find that useful?

ANTONI: Erm yes and no as I said in my case it was a number game I did 70 erm C.V.s so probably I got better and better at it but a lot of people would just give up after 5 so erm well yes it was useful but could more useful actually

KS: How could they have improved it?

ANTONI: Well it's like erm I can bring you a citation of erm one engineering recruiter that I mean in London with my Malaysian friend erm he said that he's recruiting engineers on a daily basis for him most C.Vs look the same because university teach in exactly the same way there's nothing that can actually outstanding it's like erm companies they don't look for the best student ok you've got good degrees so you've got good qualifications everyone has good degree which means that mostly everyone has good qualifications some of those people are just dick heads so you don't want to work with them so yeah which they didn't say at university

KS: So, what were you hoping to get from doing a placement

ANTONI: Get money to survive another year that was my the most urgent drive obviously they were talking nicely about career perspective and obviously to get experience but yeah, my most drive was get money for another year

KS: Can you tell me about what placement was like in the first few weeks what it involved?

ANTONI: Erm well first few weeks it was induction because they've got like erm corporate training that you need to go through like videos about sexual harassment how to comply with other people not being a savage at work then they introduced me to all site gave me a desk erm and it started my first job was to design something that would be prototype that will be 3d printed and it was like erm a cup because the whole machine its paying out coins so they need me to design a cup that will catch those coins actually the cup was designed the only thing I had to do was just add snap features so they can clip in coil erm with wire on it the idea was that coil generates automatic field and by that you can detect whether the coin is in the cup or not so the whole thing was to design clip features something really basic erm you would do it after my course in 5 minutes but it was taking me couple days probably it's just sort of like uncertainty because it's your first time doing something that will be made in reality it's not only a computer simulation your lecturer will give you feedback it was like ok well damn is it going to cost money if I screw up as well they will look at me a different pressure erm that's sort of pressure I felt for most of placement maybe I was sort of relaxed last four months erm but fortunately I got erm more and more important projects I designed erm test equipment that they are using over there then I got that noisy device that they were struggling to repair it for a year erm well I suppose someone didn't pay much attention or they were understaffed just customer was complaining for about a year so I spent a month working out what, what can be done but they had like a free resource this guy actually is not *inaudible* the task so he can sit on it so erm with him I could also go to Germany they sent me to Germany erm was like a saying ok if you weren't doing well we wouldn't send you because you are just a student but you did well so yeah you can go to Germany and show them what you have done with the device

KS: So, you went to see a client in Germany?

ANTONI: No, I went to see out subsidiary company that had loads of broken units, so I just came there to show how to repair them

KS: Oh, right what was that like?

ANTONI: Erm well I've noticed that people in Germany they swear less than people in UK they are more like erm stoned yeah it was nice it was nice erm that was always my point to travel to see other places like in UK so going Germany was another experience yeah, I liked it

KS: That's good, so what kind of training did they give you initially how did they teach you what you needed to learn?

ANTONI: Erm no training well I know that some companies they've got training scheme which probably I would wish myself to get into such one erm but they've been in the industry for years and they're too busy to teach you anything so it's like ok here's a problem here's like a few constraints and work out which is sort of good and bad, good because erm well you have to figure out things on your own and you have to sort of work out who can help you with what, with where to look for another resource for who can help you with so it's like erm well its good and bad some people could just say well shit I don't know what to do yeah I'm just sitting because I don't know where is the thing I'll be just over there, but you just you have to go again because they're waiting for it so no there was no like formal training I had obviously like a chat with my supervisor which I actually had to at some point I actually had to ask for myself I'm here like 4 or 5 months already it's like erm am I doing good am I doing wrong give me some feedback erm 'cause you cannot improve if you don't know what you're doing wrong so yeah now I've got quite a lot of training because now permanently employed so they are paying for the training

KS: Oh, right so they wouldn't pay for it while you were a student?

ANTONI: Yeah it's like what's the point doing this he's someone who might never come back erm obviously they needed some people erm but well I didn't have any agreement erm that was also a messy situation because a person who, 2 people who you are interviewing at university are getting a placement erm and one of them was my direct supervisor was erm senior engineer I got a really good contact with him but in the meantime when I came back to, sorry on the placement when he said that erm what am I going to do after university so I said some of my friends said I do a Masters and probably at some point I wish to get a Masters as well erm especially at the time was student finance introduced for the first time student loan for getting Masters so that was in my head which I'm happy that they haven't taken it erm so he offered that possibly I might come back to the company, the company might sponsor my Masters part time so yeah it was a really good deal but when I came back to in the meantime he had been promoted for erm global new product development director and he moved to US so I was like erm so the forces distribution has changed erm I was still under the second guy who was interviewing me which is now actually that guy gave his power to a new manager like many things have changed but erm it's alright because probably seeing some of my friends who actually did Masters erm probably wouldn't be worth at the moment probably better to get experience and then get a Masters erm. So erm yeah last week I had erm two days of training how to use solid works which is I knew about it but how company is transitioning into solid works the I had two days of *inaudible* software which is something that simulates how molten plastic would behave in the in molten in the shape so I'm like I didn't think it cost a couple of thousand pound so fair enough you can download probably software pirated and play about but I got erm industrial training I found are a bit different to probably university or you can find something on Youtube it's like erm more condensed more exactly what you need erm and then I'm going to have another training using simulation packages because at the moment I am the only one who has experience of using simulation in the company so we sort of got agreement that I will be the guy that can do simulation for them which is again good for me because they won't be able to kick me out

KS: So, is that what you learnt at university or on your placement year?

ANTONI: it was part of university as well but it's like erm at university you get one project that erm you are just keeping doing for a month before deadline but that works takes you do it in a week so it's more specific and erm you don't have much time for playing because you need to know

KS: So, in those first few weeks do you think there was anything they could have done to make it a bit easier on you to get used to your placement?

ANTONI: Erm well give me taxi from *university location* to *placement location*, free meals, free accommodation

KS: Oh, right were you commuting down there?

ANTONI: Yeah for the first half year, but it's a hard question because that was sort of part of the experience, obviously you could do many things to make it easier but erm you see when I came here I was looking for something for difference between Polish and UK education system and I found one book but that was about study skills and on the first page the author said British education system hasn't been designed to teach it's been designed to fail people and gratify those who survive which is probably educational system based on good grades based on all those things actually interesting thing from psychological point of view research in Finland in Finland they are going to get rid of classes, well again I think university not to make life easier that's sort of the major concept to make life harder and see who will survive and again it's like erm even my probably first impressions after couple of week I'm getting more responsibilities I'm getting more like erm more variety of project but first week actually I was sitting my company like ok I got my first class I got my IMCHE award erm ok they pay me well because I got like a very high graduate salary erm but all I'm doing all day is testing coins actually seeing how they pay out how they behave it's like do I need a degree for this anyone could do it after a week of training it's like what the hell erm it's probably sort of that's why the companies have good internal trainings because erm universities doesn't give you, gives you a document that confirms you are capable but there's another part after that so that's part of what I'm saying university is not about educate its sort of like erm testing people who will be out to get highly paid positions or any positions in the case of other faculties

KS: And then you learn whilst you're there. OK so moving on to the main bit of placement so can you describe your workplace for me so like the atmosphere, size, your colleagues that kind of thing

ANTONI: Alright erm well so the office is erm again it's my first engineering job but erm I spoke with a few more experienced engineers and its like it happened I'm in a really good place and again also the experience of others, students on placement erm one of my colleague erm she was designing she was working for a company designing industrial fans which is basically the same thing in different sizes so there's not value it's the same, another friend was working for a company designing viscose dampeners it's like a dampener that you put in a huge engine motors like engines on tracks technology is exactly the same from 1960 just different shapes and different fit, whereas in my company there's plenty of different thing there's mechanical things there's software electronics erm I've got 3d printers so we prototype quite a lot so erm that was that was pretty good thing for variety. As I said the layout of the office was pretty open so everyone has got desk but you can go and talk with, I'm sitting next to my manager which is mechanical engineer but on my right hand is different guy who is writing software and the front of me is sitting project manager so we are sort of spread randomly everyone sits randomly near anyone but you can go and speak with anyone erm people are helpful probably what you would find with engineers in general I'm not sure how it was with the guy before me but erm it's like once you are sitting all day 8 hours and sometimes you are

designing something you don't need to speak with anyone for 3 days so once you go to your colleague and ask them about some stuff they're just happy so yeah very chatty they're very helpful yeah it was quite a good environment

KS: So, did you find it useful to be sat around people that were all doing different things did that help you learn different parts of the job by sitting around a variety of people

ANTONI: Erm yes, yes I got erm more appreciation of how you say about all the effort because it's easy to like erm I guess misconceptions like ok I'm designing something that is real something you can touch hardware but erm you can think that writing software it's like you can do it in 5 minutes but I can have that same misconception about your job about what you are doing psychology its some weird book about peoples mind but its more than it is erm so yeah I learned more appreciation about other engineering field that it's not that easy to do anything I got more appreciation about stuff that I'm using everyday like phone or PC because erm it's really a huge chunk of work and years of experience. So yeah talking with other people it's like again it was my personal situation I had to speak with people because that was my way of survival for first half year of my work on placement I found another engineer who live in *location* so and he was software engineer so I was just travelling with him every morning and evening so that was another thing that commute with people so erm yeah it is helpful for you to ride with them

KS: So, did you talk a lot about work on the commute up?

ANTONI: Oh yeah, yeah, it was like erm I learned about different perspectives erm from electronic point of view, some gossip, some complaints you know it's a part of the job but it's also like at university there's people with different mentality that you have to deal with its like not only technical things its more than its part of the job to get on with people as well

KS: So how did you find speaking to people in English when that's not your, because you're Polish aren't you so did you find it difficult speaking in English all the time?

ANTONI: Well erm probably not as many other international students because as I said I'm Marilyn Manson fan that's the guy I learned English from because in Poland you will find 2 kinds of people if you're talking about English people who can communicate pretty well like me or they don't speak at all so yeah I sort of started learning on my own when I finished 13 that was the first time I heard Marlyn Manson and he changed my life but that's another part of the story but erm yeah I was starting quite for myself English that's why it was easier for me when I had erm, I was working in Greece for 3 consecutive years all during summer time so I don't speak Greek so I was talking English another thing you had to speak as waiter erm so was it hard erm it was probably harder writing for me because erm it's like erm the way how they teach you in Poland you've got Polish teacher and when we write it's like ok looks alright but once you're actually writing for native person you will actually see that the word that you would in your native language at the end of the sentence actually for them sounds better once you put in the middle so probably communication was alright but in a way how communication was going wasn't very successful erm so yeah it was sort of a challenge but erm that's why I came here.

KS: Yeah, I get the impression you like a challenge

ANTONI: I don't like staying in place so probably you could say that

KS: So, were you happy with the amount of work you were give on placement?

ANTONI: Erm were I happy? Erm well it's like erm yes I was really good placement, for the first couple of weeks I was maybe didn't know what I was doing *inaudible* with my manager because no one knows what they are doing it's like erm a bit of guessing so erm so yeah I was pretty pleased with placement I came with a good time of the project because they wanted to look at the machine so erm designing erm test equipment was a pretty big project erm then again I had got a noisy machine erm so erm yeah it was ok it was ok

KS: I meant to ask you before you said you asked for feedback how did that go was that did that go well

ANTONI: Erm yeah, yeah my manager said that he's happy he obviously see that I'm not lazy and that I wanted to do stuff it was well probably was my whole point to know what they think about me what am I doing there is like erm, you can sit like scared in the corner and hope you do it right or go and ask erm so yeah I got pretty good feedback about that

KS: Did he give you any constructive feedback in terms of like how you could improve or was it more just a case of no its fine carry on

ANTONI: Erm yes there was some of that sort of feedback you know it's like erm about all the projects except erm test equipment because at that point I was sort of independent enough in the first stages I was like just showing them what I'm doing erm so yeah I was getting sort of hints not proper feedback more likely erm yeah they were so busy because erm that's a big project and they were just starting with it so they needed students I was second student over there guy before year before me erm well actually they said that he was not bothered actually they found me more useful than they expected so yeah that was good to hear

KS: How many people actually worked with you were there not many of you?

ANTONI: Erm there was the mechanical team so at time was well there's Jared which is senior engineer erm then there's Derrick he's that time he wasn't engineer cause he was after some college erm but he's been that company 20 years so he was like a draftsman doing joints erm then there was Brian erm my boss that has been promoted as director and there was Dan another senior engineer and Tom the principle engineer oh no there was more people there was also Kieran he's like 40 years in the company and there was Frank that he left retirement this year that's why they also hired me and that's why I'm getting job more responsibility because this year 3 senior engineers are leaving and because of that mean manufacturing cutting cost talking about building so well it looks like they're not going to hire many new people

KS: Yeah so like one person doing the job of three?

ANTONI: yeah so because well I knew already what was going on probably easier for them to give me good salary and just invest in me to get training at the moment

KS: So you had like 6 or 7 people in that team and then how about in the actual office was there quite a few of you in the office?

ANTONI: Erm yes its about 20 people more than 20

KS: Just trying to get an idea of the size of everything so did you make any effort to influence what you were learning on placement did you find there was anything you really wanted to learn so you asked to do projects relating to that?

ANTONI: Yeah as I said one of those things was erm I wanted to get myself a final year project because I knew that if I in university there's going to be lots of problems so better if I would find my topic so I can get familiarise with it so that was one of the things I was sort of looking around asking people what I can do for my final year projects so I could have a few ideas erm and yes for, I'm not sure if was two years ago but I remember the design software university was teaching us how to use solid works and the company actually had both so naturally for me to use solid works but erm all of them they just got used to using inventor because they were using it for 20 years but now they are all forced to use solid works so erm so yeah I got the chance to play with the software as well do some things on my own erm because again I was its still quite like that erm you don't feel boss after you as like erm I've got quite a bit of freedom to play around with things erm although its changing because corporate so now 'cause they were like a local company but erm *company* is corporation that bought the site in the UK so now they are introducing all those systems improvement erm timing for everything

KS: So, it's becoming more rigid is it?

ANTONI: Erm yeah but there's also another part of our manager we will get specialised will dictate what we are doing and how we are doing because no one else will be able to do it erm so yeah I would say I was sort of erm maybe not panicked but I was feeling like almost a wheel in the machine as a one guy is retiring another guy is leaving another guy is spreading panic about what he's going to do but I was like it is actually a good place for me to be because I actually maybe go straight ahead and apply for another job since I'm freshly out of graduation and my credentials from degree are still fresh erm but well it's like we're getting more projects and they are investing in the simulation software which they didn't have license for so far erm so they've got a plan to and because we are the second cheapest engineering force in the corporation group they cannot get rid of the whole company so erm the idea is to a specialised engineering office as possible they invest in those software's they are trying to bring new product in which is also for me because I want to get to touch everything at the moment because I'm not sure if I will stay in that company I don't know if I will stay in this country so it will be just cool to do as many heavy projects as possible

KS: Yeah and build your cv moving on, do you think that you've changed at all since doing placement

ANTONI: Erm yes I was more prepared for final year erm yeah I sort of planned my final year to have as least distractions as possible although didn't work out everything that can go wrong erm but yeah my whole point was to decrease distractions as much as possible 'cause I knew after second year that final year will be very hard so erm I was ok I got money that I don't need to work and I just said I don't want to care about anything else yes erm I was more after the placement I was probably more persistent to get my good grade

KS: So, what is it that made you more persistent then?

ANTONI: It was I pretty enjoyed being on placement I pretty still pretty good salary I was able to save half of it and still live somehow so it was quite human job compared to work in McDonalds or being in Greece, so it was just good saying its pretty good to be an engineer among all the crap jobs that you can find yourself to be in so yeah

KS: So what advice would you give to someone who's thinking of going on a placement?

ANTONI: Go for it keep applying and don't follow universities advice about writing C.V. because that means that 100 people on your course will have the same C.V.

Appendix 13 – Tom Transcript

KS: The first thing that I wanted to ask you was about your expectations of placement

TOM: Before I went on it?

KS: Yeah what kind of thing were you expecting if you had any expectations?

TOM: It was, I've got a placement as an office job as a design engineer, so my expectations were pretty much to be thrown in the deep end and tested to see how much I'd learned at uni, that's what I expected it to be

KS: And how did it compare?

TOM: Yeah it were good erm the first, my boss the guy who hired me was sacked in my first week which made it a bit awkward erm so it was kind of I was, there was Ross who then suddenly became the senior engineer from just being a normal design engineer was then also tasked with looking after me as well so because they lost one of the team I was pretty much thrown in the deep end I had to get my hands stuck in pretty much straight away so erm it was good 'cause I managed to test myself so I enjoyed it I think a little bit more than just doing the basic tutorials that I was doing in my first week.

KS: So how did they train you in the first week if you were thrown in the deep end did they give you much training?

TOM: Erm so when John was still there in the first week I was using Solid Works which is a CAD system I don't know if you know it? So I was basically doing Solid Works tutorials and basically practicing modelling, I worked for a valve company so I was practicing modelling the valves that they do, then in the second week it was kind of a Ross would give me a crash course in what I needed to do something and then he'd set me off with it and just said if I had any problems I'd ask Warren who was the other guy.

KS: Yeah so just kind of learning as you go along and asking when you need help? And did you do anything to prepare yourself for placement or did you just kind of...

TOM: Erm well I knew the placement student from the year above who was at the same place, so I spoke to him erm and he just kind of gave me a pointer of what I'd need to know on Solid Works and just a crash course in valves as well before I started so I had a good idea, but I learnt a lot more throughout the year so

KS: What is it that you're doing now are you in your fourth year?

TOM: Yeah, I'm in the final year of the BEng course and I'm enrolled on the MEng course so

KS: So, you're going to go on a Masters after that?

TOM: All being well, if I get a first apparently, I can go straight on to a PhD which is what I want to do so it all depends on my results this year I guess

KS: Are you on track

TOM: Erm yeah, I got half a percent off a first in my second year

KS: Yeah so pretty on track for a first. Erm so how did you find those first few weeks going from being a university student to a placement student?

TOM: Erm yeah I found it quite easy the early mornings were a bit of a problem 'cause I enjoyed having a couple of lie ins a week but erm I've worked summers and things so...it was a bit strange knowing I was going to be there for a long time and obviously these are people that I'm going to be working with for 12 months erm but yeah I thought I got in there quite well thought it was kind of seamless I think.

KS: And did you find that the other experience that you had helped you with transitioning to placement

TOM: Yeah, I mean both my parents are up and out of the house before 7 o'clock every morning so I thought it was a natural thing to be starting at half 8 so I thought I was getting a lie in, so yeah it went good for me I thought, the way I've been brought up and the people around me kind of prepared me for it.

KS: did your role develop as time went on, did you find it got harder?

TOM: Yeah it was, there was Ross gave me more and more increasing like calculations and things, so he did quite well to say he was a bit he was quite honest and said he didn't know how to handle it but erm, that was good but then half way through the year they moved offices and then two months after that they had a new computer system installed that they were all using so I think I was just kind of progressing with the company as they were moving

KS: Yeah, so you kind of came in at a time of change?

TOM: It was a lot of stuff to learn by the end of the year I didn't think I'd learned that much but now I'm going on to my final project based on the company and I realised that I picked up a lot.

KS: Oh, so you had a chance to kind of reflect on it all so what kind of things do you think you've learnt from it?

TOM: Erm well I learned a lot about valves I thought they were quite simple things but they're not

KS: So, a lot of technical things?

TOM: Yeah it was mainly technical, I spent a lot of time in the testing facility as well erm 'cause we liaised a lot with them, so a lot of technical knowledge and a good understanding of how engineering practices were, really.

KS: What was yours like was it a small practice or a big company?

TOM: It's like a medium size I think, erm I know turn-overs about 10 million pounds and they've got about 60 employees, so it's not a small company they do provide to navy's all over the world, so I would say it's a fairly-medium sized company so.

KS: And how did you find that did you like being in a mid-sized or would you have preferred a larger or smaller company?

TOM: I think for my placement I preferred it being quite small 'cause I had the chance to get involved with a lot of different things, I think further down the line I'd like to get in with a bigger company and work my way up but for placement I think it worked well

KS: So why is it you'd like a bigger company?

TOM: I want things to aim at, I don't want to be sat where I am which at the company I worked at there wasn't much chance for progression and promotion which I think I'd be driven a lot more if I had the promotion to aim for.

KS: Were you happy with the amount of work you were given overall?

TOM: Yeah I was kept busy all the time, there were a few times when I was told in the interview there are a few times where the engineers don't have a lot to do but then we were given, Ross had a few tasks that the MD had passed along that were just like sorting things out and updating sheets that the engineering people sent out so we were always busy.

KS: Did you find you tried to drive what you were learning in any way or was it a case of you just have to do what you're given?

TOM: There were a bit of tedious jobs to do but there were other times where Ross would say like 'there's an opportunity for this, are you interested?' 'cause he'd said he'd try and tailor it as much to me as possible so I had opportunities to go out and visit site and visit foundries and things like that so

KS: So was it the manager then the supervisor for your placement

TOM: Ross became my supervisor

KS: At the same time as becoming the manager?

TOM: He never became the manager he became the senior engineer they were looking for another head of engineering 'cause Ross didn't want to do that so between Ross and Christopher who's the MD they both kept me going

KS: Did you have a lot of guidance then from your supervisor?

TOM: Yeah there was always, I mean most things I'd managed to pick up with a bit of a he'd just show me to start off with erm but he was always there if I ever needed anything explaining he'd do it, he was a very smart guy so it helped.

KS: Did you find there was much opportunity to collaborate with other people, working on team things or...?

TOM: There was, I did spend a lot of time working with the purchasing manager 'cause obviously we had to get quotes for stuff that we were designing and a lot of time working with the sales director as well 'cause again sales comes to engineering when an order comes in to see if they can do it.

KS: And did you find you got a chance to learn a lot from them?

TOM: Yeah, I got the chance to spend a couple of days with them in the year and the same down on the shop floor with the guys as well, they were quite happy for me to move around and experience it all, I enjoyed it.

KS: That's good so you get a wide range of knowledge at the end of it. So, we kind of covered before how you taught yourself a lot, did you find that basically it was consisting of being showed something quickly, and then work through it yourself throughout the year or did this change?

TOM: No, yeah, towards the end of the year Ross was happy saying this needs doing if you struggle let me know about it ask me, obviously to start off with I didn't know that much about valves as

such, so it was more of a this is this, this is that, this is what you need to do, so then it became more of a can you do this, they'd just send me an email saying this needs doing have a look at it, so..

KS: What was everyone else like, did you enjoy the workplace?

TOM: Yeah, yeah there was some characters in there, there was one lady Sharon who liked to have a moan most of the time, but yeah no they all get on really well so it were...

KS: And did you that they treated you liked a placement student?

TOM: No, they just treated me like one of them, it's a big open office plan they divided it all between sales and all the rest but then as we moved it became a big open office and the directors were in offices that opened up into the room so, yeah it was just one big family really, so it was quite nice to go in.

KS: What would you say your skills and abilities are that you gained from your placement?

TOM: Erm I think that it showed me that I'm more suited to the production side of engineering, erm I mean I've always been good at the designing side of it, which is I think what I preferred to do in the end but having spent time down on the shop floor with the production manager and the guys on the machines and things that seems to be where my skills are a lot stronger

KS: Even though you prefer the other side of it?

TOM: Yeah I think it just came a little bit more naturally whereas the design side is obviously a lot of calculations a lot of thinking a lot of looking at standards and things like that erm the production side kind of I understood it without it being explained, so I'm not saying that that is where I have to go or what like I'm destined for but that was definitely a lot more natural for me

KS: Do you think that's where you're planning on going or have you still not really...

TOM: I still haven't...that's something it depends on where I go I mean I don't even know if I'll end up in engineering

KS: Yeah because you've still got your further studies haven't you. Did you feel you could contribute your own ideas to things?

TOM: I think with designing you've got like they say you've got what is it designers initiative? Where it's your design so it will always be slightly different to someone else's because of how you see it, so apart from obviously the company had certain things that they wanted to be as they were and so like all your standards and obviously they give you guidelines but it was pretty much a free run other than that, it was checked off and you'd have group meetings about things and change things but erm it was quite free. We brought a new range of valves into the company when I was there and I got quite heavily involved in that there was an outside company that did most of the designing erm for the butterfly valves but when they came in we had a lot of problems with them and me and Warren were both set on (inaudible) it was interesting to get stuck into that, that was the whole second part of my placement pretty much

KS: Oh right so it's a big job

TOM: Yeah, they were still doing it at the end to be honest there were a lot of problems with them they were working but they could have been optimised a lot, so I was allowed to do a fair bit on that which was good

KS: How do you feel it compared with being at uni being on placement?

TOM: Erm, a lot more intense, obviously you're erm given a lot longer deadlines at uni because you have all your learning and lectures to do alongside all your work, whereas at work it was we need this for then, like get it done basically there weren't much room for error erm or to be late because of the industry it was for they're quite a demanding industry *Client name*

KS: Did you find that you were ok to meet those deadlines?

TOM: Yeah generally Ross was quite good at knowing how long it would take us, so he'd put two of us on it if required or he'd help himself if needed it was, I wouldn't ever say that it was, there was no impossible deadlines but they were certainly a lot tighter than I was used to.

KS: Yeah, a bit more pressure. Was there much opportunity to use what you'd learned at uni at placement?

TOM: Yeah no I learned a lot, my time management had definitely improved through uni because my A levels were a bit of a disaster prior to that so I was able to use that and my time management skills and generally just report writing skills as well, I wrote a fair few reports

KS: Did you not find as much of the technical stuff applied or...

TOM: No it was different to what I'd done I'd never erm 'cause it was all about your pressure of your flanges and things like that your pressure of your bolting cover and we hadn't covered that at uni so that some was something I learned on the placement but the principle was the same it's all just maths it's all calculations but applying it to that was different so that was something I learned there.

KS: And did you find when you returned to uni you could apply what you'd learned on placement?

TOM: Yeah, I mean I'm doing an industrial placement so that's basically a continuation of work I was doing there, erm we haven't had much to do we've just been in lectures we haven't been given much work to do, but I'm finding that I'm spending a lot more of my free time between lectures actually doing work rather than dossing around which is what the first and second year was all about.

KS: Why's that was it because you got use to the 9-5 mentality?

TOM: Yeah it was kind of a productivity thing, it definitely increased me wanting to do it instead of kind of saying yeah it will be done, it will be there it'll be ready when it needs to be but now I'm kind of like well I've got it lets start it even if I don't get it finished.

KS: Do you think you're more motivated?

TOM: Yeah you could probably say that I hadn't thought of it like that I just want...yeah, I've got more desire to get stuff done now so yeah it is a motivation thing isn't it

KS: What was the most enjoyable part of your placement

TOM: Erm money, definitely, everyone loves money, yeah it was the fact that I was doing something that I enjoyed the whole part of the designing was its something that I do enjoy so erm the modelling things on the computer erm getting to talk to contractors, stuff like that, I enjoyed all of that

KS: What did you like least about it?

TOM: I think it was just the tedious jobs that companies have to do, we had to get it done type of thing, they dragged a little bit, when you had a few days doing them, but I wouldn't say that it was ever overly boring it just wasn't as exciting as the rest of it.

KS: Is there an example of a particular learning opportunity from on placement?

TOM: I think that's the new range of valves that came in for a whole company as a, the guys on the shop floor had to learn how to machine them efficiently and cut the time down on that we had to learn with the guys in the fitting and testing basically how to make them work because at first the, I don't know how well you know valves, they have like a seat seal that the plate pushes up against to prevent the water going through erm the first design of them just didn't work basically so that was a bit of a headache for us trying to find the material that worked and stuff like that erm so yeah there was a lot of challenges but it was that I think that was probably the one.

KS: When you returned to university do you think your relationship with the lecturers changed at all?

TOM: I don't think I was spoken to like a student anyway; I've got most of the same lecturers that I had. My final year tutor for my project is the same lecturer that I had for my placement so that relationships just carried on but no I don't think it's changed at all personally

KS: What was your relationship with your lecturers on placement, did they come and visit you?

TOM: Yeah, they do two visits that were scheduled erm but Romesh is quite knowledgeable about the whole valve side of things I was told that before so when and if there were problems he was always at the end of an email.

KS: So, did you find it valuable to have that support from uni whilst on your placement?

TOM: Yeah definitely

KS: Now do you feel more of a professional engineer or do you still see yourself as a student?

TOM: No I'm still a student, I don't even think I'll ever be an engineer, I do enjoy it and I would like to get into the engineering work but I don't feel like I'd ever fully class myself as an engineer, there'll always be people that's better than me, yeah like I said I'll have an engineering degree behind me and I may be working as an engineer but I'll always just see myself as me but never see myself as a professional person I'll just kind of do what needs to be done but that's just a personal thing though.

KS: Why is that though what is it about yourself...

TOM: I don't know it's just a strange thought to think of myself as like (KS: An engineer?) yeah, like if I go on to get a, if you do a PhD or a doctorate or anything like that its strange to think of myself as Dr Jake, it doesn't feel right, I'm just the same guy who has a laugh at every situation.

KS: So how did placement make you feel about your intended career?

TOM: Yeah, I've never had a, as I grew up I wanted to be a pilot in the RAF that was my first goal but I'm unable to do that because of my ear so engineering was just the next thing, erm I thought about signing up to the military as an engineer when I finish but...

KS: So, you're just keeping your options open?

TOM: Yeah, I'm just going to apply for anything I see that interests me and if I get offered a job I'll see if I like it.

KS: What other work experience did you say you had, you said you did summer placements?

TOM: Yeah I got an internship between first and second year at *Company name* power station working as a boiler engineer, erm so I did three months there, it was mainly just shadowing they said obviously in three months I was there in the summer which is their most crucial time because they turn the boilers, the (inaudible) are out on maintenance checks and stuff erm so its pretty intense but they spend the whole of the winter and spring planning for that so I missed all that and it was too late to give me any projects as such, so I spent the three months learning about how the power station works, erm just following the guys learning, again I learned a lot of just how engineers work there erm and they were just bringing in a new biomass boiler which is a new thing the government are going for its burning like degradable stuff and its cleaner for the environment than coal 'cause we're going to run out of it erm so there were a lot of challenges there, I'd managed to get a little bit more involved in that 'cause erm biomass burns a lot brighter and a lot hotter which was causing a lot of problems with the erm the boilers erm so yeah I got a lot of valuable knowledge just of how engineers work and that was, they had incredibly strict deadlines so that was, I was able to the other side of it I think there where they had to be done, because if they didn't get their job done the guys after them couldn't get their job started so they were given, they had timescales that were impossible to meet pretty much and they managed to do it but it was quite good to see

KS: So how did the two experiences compare, obviously one you were shadowing more...

TOM: Yeah I mean I don't know if you've ever been to a power station but they're huge erm something like I think it was 15,000 sometimes staff around, obviously most of them are contractors, the power stations themselves only hire about 1000 I think and then everyone else is brought in and they work under the engineers but that was a much bigger scale, much more crucial because its electricity, its power, we all need power, erm and then obviously I was at a smaller company where it was a lot more relaxed. There were still deadlines like I said but it was much more of a family environment rather than a this needs to be done now, shout at each other...

KS: Did you prefer this placement?

TOM: Erm I'm not sure if I'm honest, no erm I've always found I work better under pressure so it was good to see how they did it, how they managed to work through problems and some of them were starting at 6 in the morning and leaving at 6 at night, erm they got, it was all over time they got paid extra for it but they weren't, they were working weekends too they had weekend rotas 'cause there's always people it was a 24-7 job there with night staff, so I'm erm I'm not really sure which I preferred , obviously everyone likes to work that little bit less hard don't they but I did enjoy the like, it was almost like a well-oiled machine, watching them all work and work together yeah, so yeah I'm not 100% sure if I'm honest.

KS: So what did you think of uni before you actually went on your placement?

TOM: As in the whole course in general yeah? Erm yeah it's always been, I've always enjoyed it because you're not rushed into things you're given the chance to, if you want to spend all the time on it you've got that time to, but then again I was the type who didn't always , like some of my lab reports were done the night they were due in and stuff so erm, yeah it is a much more relaxed atmosphere and obviously you learn at the pace you want to, you're never pushed to do, to learn more than you need to but if you want to the resources are all there.

KS: What were your relationships like at Uni.

TOM: I'm a social guy I always liked to have a good laugh, I'm still very immature erm, but yeah I'm I got the work done that needed to be done, I mean even, there's a group of about 10 or 15 of us and if work needs to be done we'll all crack on and do it but most of the time we'll all lounge around in the design studio or go get some food and stuff.

KS: So what kind of things motivated you during your learning at uni?

TOM: Wanting to have the best degree possible basically

KS: Is that still the same following placement?

TOM: Yeah for the moment it is, I don't have any goal as such so just getting the best grade possible.

Appendix 14 – Regina Transcript

KS: Could we start off with where you are currently, with what you're doing at the minute?

REGINA: Yeah, so I'm a final year undergraduate student doing computing studies it's an individualised programme because I've switched from technology to computing,

KS: When was it that you switched from?

REGINA: I switched this year in my final year right before the year started I've spoken with erm some of the with my personal tutor and some course leaders and they all helped me do this.

KS: So, was that after you'd done your placement, so your placement was relevant to your old subject?

REGINA: Erm sort of it was a mix yeah, my placement was on erm front end development and my web technology degree helped me with that, but I need some of the skills that were included in the computing degree that's why I switched.

KS: And what is it that you need them for?

REGINA: Mostly for my masters degree, I've applied there and I've been accepted and they required me to have on the transcript the modules that weren't included in the web technologies course and yep that's why I switched

KS: So, was your masters degree something that you could have done from either degree except that you needed those modules?

REGINA: The skills provided by the web technologies course wouldn't have been enough for me to pursue the masters that I wanted

KS: Where did you do your placement?

REGINA: At *company name* in London

KS: Oh very nice! What was it that you did there what was your role?

REGINA: I worked as part of the *product name* product *product name* is the *company name* search engine as a front end developer so I was responsible for the nice visual things that you see on the platform erm and what the team in London was particularly specialised in was the autosuggest feature in the search engine so all the suggestions that are displayed when you type a query erm so yeah I was working on that, I had a huge project assigned and erm I shipped it I mean and by shipping it I mean its live on production and it its live on all versions of *product name* on all markets and that has been incredibly rewarding for me to be an intern and to do such a huge project on my own.

KS: So what is it do you think that allowed you to be able to do that?

REGINA: Erm they first told me I guess in the first weeks they told me 'hey investigate this project erm write up a document and explain how you would do it, how you would put things in practice' and I was very very motivated to do it I really put all my heart into it and I guess they saw that and yeah they erm I had a mentor who was supervising me making sure that I can erm I don't know ask him if I had any questions he would set up tasks and everything but I was the main developer assigned to it and I guess this this showed my motivation

KS: So, if you were the main developer and you had your supervisor was there anyone else in your team working on that project or was it the two of you with you as the lead?

REGINA: Erm we were the main ones but there was also a project manager, a PM, she was responsible for just project management things erm setting up weekly meetings, erm talking with the designer teams in the US, also we had testers for this project they would test everything I developed they were also based in the US erm and there were other developers that would probably come in and just help with a small bug if I had too much on my plate they would just come in and help occasionally

KS: So, with this project, do you think you were able to do it because of anything you did at the undergraduate level or was it all very new?

REGINA: Erm there were erm both things that I did in my undergraduate degree like the HTML and CSS the knowledge I had from that was very useful, the java script parts as well, erm but there were some things that I had to learn on my own just to make sure that I ramp up and that I'm up to speed erm so things that weren't covered in my degree were C-Sharp the C-Sharp language erm command like controls I had to learn those all sorts of testing strategies testing development and erm, what else, erm deployment strategies so yeah there were an equal measure of things that helped me and things that I didn't know for my degree.

KS: Could you tell me a bit about the workplace, could you describe and just give a bit of idea of what it was like?

REGINA: It was amazing, the, all my team was international, the entire office the development part was very very international, there were so many cultures there, it was incredible for me as an international student to be in such an environment where I could feel that I I don't know I thrived people were erm the same as me I can say, I mean they relocated to this country, we would talk about all these things that we would find funny or interesting about living in the UK and they were just very, very friendly with me, as an intern I felt like I was the baby of the team and they would take care of me and if I was stuck somewhere they would stop what they were doing and help me out I was actually incredibly surprised by this attitude because I was afraid in the beginning its *company name* its a big corporation they wouldn't care about just another intern but it was exactly the opposite erm and also I had so many opportunities to get involved in side projects as well as the day to day work that I did it was just incredible

KS: Could you tell me a little more about those side projects?

REGINA: Yeah so erm in our internships 70% we dedicated to our work but then 30% we could get involved in I guess up to 3 project groups erm the entire internship was just very very well organised by the human resources department erm and these projects we would select them at the beginning of our internships we would have to apply for them erm and the three projects that I was involved in, one was for encouraging women in computing so I would have to go to different universities and talk to girls erm the second one was about erm promoting the internship scheme at career fairs at different universities so again I had to travel around the UK and speak to other students about the internship and give them advice erm and the third project I was involved in was a hackathon in London erm it was organised with interns from *product name* because *product name* is a *company name* product we yeah we had to organise the entire hackathon find sponsors talk to erm the local council because we were organising it to erm help the local area improve itself and erm help the students erm because it had to be erm it wasn't very well developed that area so it had at a lot of problems and difficulties

KS: So how did it feel working on all those projects?

REGINA: Very well I mean my manager and my team were all supporting me I always told them hey I have this meeting to go to at a different office in London I'm not going to be here this afternoon, they were very supportive erm they knew everything I was involved in, erm I had to explain to them first because I was the first intern on my team so they didn't erm they didn't know about all these opportunities that we had so I had to explain hey we have this team we can join and they were very supportive even giving me advice 'you should do this' you should do that' erm some examples that some other friends of mine other interns were taking part on were erm the erm *company name* intern blog they would take care of that blog some others were very charitable projects like erm raising money for different causes that *company name* would sponsor so yeah there was a wide range probably more than 10 projects that you could sign up for.

KS: Erm so the one where you were going around to girls and encouraging them to do with now why you've got your own group and you're encouraging girls to work together in computing and to support one another

REGINA: Yeah I really felt inspired erm by those by this programme it was a programme that *company name* supported they were the main sponsors of it erm and it I went around different universities talking to girls that were very motivated and driven and this programme only took part in certain universities that *company name* or the other sponsors selected and I thought hey this would be an amazing idea to have this at our university erm so yeah that's why I decided to do this here erm I know it's a bit late because its approaching the end of my undergraduate degree but hopefully I'm going to find interest from other younger students (KS: To carry it on?) yeah

KS: So, you said in your team you were the first intern within that team, is that ever, they've never had an intern work with them before?

REGINA: No, this team they had never had an intern work with them before

KS: Right ok so is it quite a new thing or?

REGINA: I think the internship scheme at *company name* has been around for more than 5 years but erm they don't have many roles for software developers in total they have I guess 120 interns a year but in all sorts of departments, most of them are doing business related things erm sales, marketing...so the development interns the number is quite low maybe at the most 20 of us out of doing actually software development

KS: So, did you still get to meet some of the other interns then?

REGINA: Yeah, we had so many events together we had a lot of social activities apart from our internship we would go to camps together we would have events

KS: Is this stuff that you guys organised or...

REGINA: No they were all organised by the HR department, yeah they were lovely they organised so many things it was so well put in place, in the beginning we had 3 days of like introduction we would stay in a hotel we would have erm all sort of activities together people from *company name* would come in and present all the opportunities we have, resources, we have our own library so we could erm, there was such an amazing person there who could give us do all the research for us we just gave him the topic and he would come with a list of interesting articles research papers, books that we could read, because I had to do the reports during my placement and that was very helpful I just emailed him and told him what I had to do and he was happy to help

KS: Which kind of reports were they meaning your university-based reports?

REGINA: Yeah exactly

KS: And how did you find doing them at the same time as doing your placement?

REGINA: Erm they weren't that challenging I mean I had to give up a few hours during weekends to work on them because I definitely couldn't do them during work but it was manageable and I managed to get some very good grades but the first one I was a bit confused that's why I got a slightly lower grade but it was still an A plus but then in my erm second report he told me exactly, the personal tutor told me what he wanted to see so I had a clear idea so I got a higher grade

KS: Erm just going back to what we were discussing about the interns and camps and all these things that were put in place so that you can meet other interns what kind of impact do you think that had on your experience?

REGINA: Amazing, I mean I've made so many friends all the other interns were amazing people I still keep in touch with them and at the opportunity we had to all stay together meet and just socialise at work, share ideas it was incredible, we would have our own group we would organise parties on our own it was actually really nice erm I think it really helped me to better communicate because I was super shy in the beginning but erm after erm I don't know talking to them feeling like I'm part of the group it was much better for me

KS: With the majority of your colleagues not being interns did you feel like you could still go to them for help, what was the atmosphere like within your department?

REGINA: Obviously there were times when they were busier so I would have to think before I would go ask them, my approach was to try and investigate as much as possible on my own and then when I was absolutely stuck I would go and ask them erm whenever I went to them to ask them something they were very helpful and very cheerful I just didn't want to be annoying so yeah they were very open to help I was surprised about that I mean some other interns that I have spoken to from other companies they didn't have this experience so they were incredibly helpful

KS: Was there much scope for you to collaborate with your colleagues or was it mostly independent?

REGINA: Erm my tasks were independent but erm I had to do a lot of collaboration with the test team in the US, they would have to test things and if something didn't work they would come back to me and say what's wrong, especially during the end of my internship they were erm migrating a lot of the testers tasks to us developers so I had to take on a lot of their responsibilities so we had to talk a lot so they would explain to me how they do things what's the procedure. It involved a lot of late night calls because there was a time difference but erm yeah it actually involved quite a lot of collaboration even though the tasks were individual.

KS: And how did you feel about that collaboration?

REGINA: Erm very well I mean the people were amazing especially the people that I'd been talking to in the US for example one of the testers I met her at the Grace Hopper conference where I went in October after my internship ended so in October we kept in touch because we were friends on Facebook as well so erm when she saw I was going there she was like hey I'm here as well lets meet up for a coffee and erm it was incredible she was so friendly we would talk, it was so nice to finally see her face to face after one year spent over calls and erm it was just great she was super friendly so I guess this collaboration really helped me a lot to network with people internationally.

KS: So, to what extent were you happy with the work that you were given the kinds of jobs that you were given?

REGINA: More than happy, it was more than I could have asked for everybody told me at the end of the internship "you're so lucky" because my project was very visual very out there you can see it you can go on *website name* and I can tell people I can show them what I did erm compared to other interns that were probably doing erm things that were just as impactful or big but erm they were back end solutions so they were used internally or you couldn't see them but the project I was given was incredible, very visual very nice and impactful.

KS: So what benefit do you think that will have to you compared to those that had the internal projects?

REGINA: Erm well erm it depends because I think the most, the biggest advantage, is the wow factor just to go and tell people I did this on just a big website erm but if they want to do if they still want to do backhand what they did at *company name* would still help them a lot, because I'm doing front end and more client facing erm features its helping me in an equal measure but it just has this wow factor attached.

KS: So how do you think your role changed throughout the year, did you find it was getting more challenging or?

REGINA: Yeah definitely more challenging towards the end because erm in the beginning I couldn't actually believe that I'm doing this that I was like coding there, but when things actually got serious and erm we were running some tests so after each small step I was implementing they were doing a test sending it, sending it out for sample to 3% of the *website* users then they would compare the metrics and see how well the feature did if people were interacting with it and after the first set of test the feature was very, very successful, people were engaging a lot with it and that's when things got serious and I was like woah I'm actually probably going to see this live on *search engine name* then I started a bit erm I don't know, I started panicking and I was like woah this is actually going somewhere because a lot of things that people worked on features they never get shipped they just test different things so yeah it definitely got challenging in the second half especially when I had to actually ship it, because when you ship a feature live you can break things it's the scariest thing ever, fortunately I didn't break anything, everything worked fine

KS: So, when it got more challenging and you started to progress, did you find that your approach to things changed or was it kind of the same because you said earlier didn't you that you'd try and do things yourself and then maybe go for help, was that the same throughout or as it got harder did that approach change?

REGINA: I think it as it got harder and actually with time I felt more confident and I knew how things were going, I was more confident in the certain procedures I had to follow erm but there were things that were technically more challenging where I had to ask for support because they were very specific and there was no way I could know them beforehand without asking somebody about how they work.

KS: So just stepping back a little bit with you working for who you work for and it is like a really impressive kind of placement isn't it erm I just wanted kind of ask you about like your application and interview and stuff like that how did all that come about how did you?

REGINA: Yeah so erm I discovered *placement company name* and the fact that offer placement years erm in my first year where I applied for one of the events they organised for women in technology

KS: Oh, right in your first year

REGINA: In my first year yeah erm I actually don't remember how I found out about that event I think it was just a news-letter I received or something erm so I applied for that event I got to, got to their headquarters in Redding and erm it was very nice because I could talk to the interns that were in that year, erm and I knew for sure I had to participate, I had to apply

KS: From your discussions with the other interns is that?

REGINA: Yeah erm so it just seemed like a very organised internship and also its huge I mean saying that you worked for *Placement company name* is incredible and erm I applied in my second year and it was quite a long process because I applied at the end of October and the entire process ended in March so they had like five stages, erm the first is the erm online application, if you're successful you get to do some online tests and if you pass them you do an online video recorded interview so you're just talking to a screen and it records you it's a bit weird, if you're successful to that stage you get to have a video interview with an actual person with an actual recruiter, if you're successful again to that stage you're asked to come to an assessment centre at their office and erm yeah this assessment centre is the most challenging one erm you, you have to do technical interviews with a white board and erm yeah its erm it's actually a big accomplishment to get to that stage but yeah being successful after that one is just crazy.

KS: So, it sounds like a really competitive position, and you've obviously got to be very impressive to get it, so what do you think that prepared you for getting to that point where you could get through all that and get to your end goal

REGINA: Yeah so erm I got a lot of help from the placement unit erm they were very helpful from the beginning with all sorts of sessions on how to prepare your C.V. I was also very lucky in my first year we were advised by one of our lecturers to create an online portfolio so I had that, I had a personal blog and a portfolio which I guess counted erm to get me through at least the first stages erm actually it was very competitive I remember the human resources people telling us they had more than 8000 applications and they had to select 120 interns so it was really, really a tough competition erm what also helped me was the experience I got from the other failed interviews because in the beginning of my second year I applied to quite a lot of internships and for the first of them I just failed to all of them erm but it was such a good experience for me I lost all of my anxiousness erm so another thing that helped me in getting through this assessment centre was the fact I'd already been offered two internships already so I was more relaxed

KS: So you knew you had a back-up plan, because I'd heard elsewhere that if you were offered a job you were encouraged heavily to accept that and that's it, but was that not the case with you were you allowed to?

REGINA: It was such a tough, actually I had three other offers before, it was such a weird situation erm what I did is the first company that gave me an offer I declined them, I don't know why, it was in Germany it was quite a good internship erm they offered me the position I think it was January so very early I just declined it because erm I felt that there was something better for me coming up I had this intuition erm then I got an offer from Telefonica the o2 company and I signed the contract with them and erm after that erm my personal tutor *tutor name* and the placement unit told me

about another opportunity that they would like me to go to it was at Buckingham Palace for the Duke of York and erm I told them I already had the contract with Telefonica I didn't want to give that up for the Duke of York internship and erm then the *Placement company name* thing came up and they offered me a job so I had to go back to Telefonica and tell them I should politely decline the offer even though I was very scared, I think I read that contract probably 3 or 4 times because I was scared they would do something and I was just like young and scared, and I just spoke to the people at the placement unit and they would encourage me like if this is what you want to do then definitely go with *placement company name* and then the people at Telefonica will just understand so I did that and they erm replied to my email saying ok that's fine but then after 2 weeks they called me and they started asking more questions like erm hey erm why did you decide to do this do you have another offer we can offer you something else if you're not happy with the role that they gave you, and I was just like "no, no, no I'm fine thank you I have another offer" and erm

KS: So, you basically had them fighting over you!

REGINA: Yeah it was it was quite a tough situation compared to how sad I was and disappointed in the beginning when I kept erm getting rejected at the first interviews because I was so scared at the first interviews then I erm I got more courage and experience, I learned how to talk to the interviewers and just it was just much better

KS: So, you know with the Buckingham palace one, you say that the placement unit were encouraging you to go for that, did they pick you out specifically to apply to that one?

REGINA: Yeah, yeah so erm the person responsible to select one of the students for this erm internship was *Lecturer name* he was the head of informatics at the time and he actually really wanted me to go, probably I stood out as a student for him and yeah he'd spoken with the placement unit, he spoke to me told me about the incredible opportunity erm but yeah I just didn't feel that attracted to the possibility it involved being the personal web developer for the Duke of York he had he still has a big online presence - website, social media accounts so I would have been responsible for that but yeah after especially after I got the *placement company name* offer there was erm no going back to anything else

KS: That was like the dream offer and you finally got it? so do you think the fact that you kind of established yourself in your first year and setting yourself up that way helped you to get that final job, because I don't think many do that do they to start attending and looking for placements that early on

REGINA: Yeah, yeah I mean especially in my second erm half of my first year I went to probably two or three events erm about just to get to know more about what it is to do a placement, because I still wasn't decided if I should do a placement or not but I saw that a lot of lecturers were encouraging us people from the placement unit would come and do some presentations even when we were in our first year so erm I just had to decide for myself so yeah I it was good that I went to all of this on my own erm

KS: I was going to ask you about your masters, because you're going to carry on now into further and you've already got an offer haven't you for your masters? So, is that in any way related to the placement that you did or?

REGINA: Erm part of it, the masters that I'm going to do is erm at UCL and its called Web Science and big data analysis erm and during my placement because I worked in *company name* erm they

have a huge focus on big data because obviously as a search engine they work with a lot of data they do all sorts of crazy algorithms to erm make those suggestions very relevant erm to users so I really felt attracted by this world of big data and information retrieval so it really helped me a lot toward taking this decision to study this definitely and it helped me I guess in my application as well because having that on my CV probably was good a bonus point for them to consider.

KS: Do you think the work that you were given do you think that it was suited to your level of understanding or did you find that it was a big jump from university to then being on placement

REGINA: Erm it was quite a big jump everybody told me that this is not a project for an intern, but I like these sort of things and probably they saw that in me, they saw that I wouldn't like to work on small insignificant projects that would be just small bug fixes and I like working on big things and taking big challenges. It helped me a lot to learn because I had to learn a lot and erm I was forced to learn it erm so erm it was actually quite beyond what I knew I could do and erm looking back now and seeing that I was able to do that it's just it feels amazing

KS: So, it sounds like the big challenge was an influence do you think there was anything else that impacted your learning?

REGINA: erm you mean during the placement year?

KS: Yeah during your placement, what do you think stands out as helping you in your learning or hindered your learning while you were there?

REGINA: Erm what helped me in my learning were the fact that there were a lot of platforms that *placement company name* had for their employees they had so many useful internal pages and websites created by *placement company name* employers to help people get up to speed with all sorts of technologies used it was a lot of erm knowledge that I had to learn on the spot because it's just internal software that they use so I had to get accustomed to that and what actually helped me learn is the fact that I don't like not knowing stuff so erm during my entire internship I was surrounded by incredibly smart people and I felt that I'm way behind them but then I erm I've spoken this with my manager and he told me you're just an intern you have still your undergraduate degree to finish don't worry you're not supposed to know as much as they know they have probably more than 8 or 9 years of experience in the industry and probably have a PhD and a masters so stop comparing yourself to the kind of knowledge they have but that motivated me to be the best that I could be because they knew so many things and I wanted to be like them so erm this definitely helped me a lot knowing that being surrounded by so many intelligent people was a huge bonus and motivation

KS: What do you think were the most valuable skills you picked up?

REGINA: Erm technical skills first but erm, erm I really worked on my communication skills a lot because we had so many opportunities to collaborate, so many hackathons in the *department* office, so many social activities we would go to a lot of places as a team we would have like erm weekly lunch together and I learned so much from my team apart from the technical knowledge it really helped me grow as a person

KS: I was going to say do you think you've changed a lot since doing your placement?

REGINA: Erm I definitely learned a lot about things like just to give an example personal branding there's so many erm workshops around that that you could voluntarily go to, the managers were super happy I would tell them hey erm I have this workshop I want to go to its for personal

development and he was like yeah fine don't worry erm so I would learn things about how to promote myself how to find mentors oh we had a mentorship scheme I didn't told you about that erm as an intern you can have a one on one mentor and a senior mentor, I had them both so my one on one mentor I would have monthly video calls with her erm she was in Romania actually working for *placement company name* there erm so it was nice that we were paired up

KS: Yeah 'cause you're Romanian, aren't you?

REGINA: Yeah erm we were paired up I was so surprised to see her name there and she, she introduced me to a lot of people at *placement company name* in Romania I actually got to during my Christmas holiday I visited their office I visited her, so it was incredible for networking perspective, and my senior leadership mentor she was the chief marketing officer for the UK so she was quite senior erm and she gave us a lot of advice she would have meetings only with the groups of 10 interns, she wouldn't have the time to see each of us individually so in those meetings she would talk about her experience give us advice on how tough it was for her as a woman to get into a leadership position but I guess it's easier in marketing because marketing its well-known its female dominated, erm she was still, she was such a role model and very ambitious now she's like erm she moved away from *placement company name* she's working for *company name* as erm Marketing Director for the entire Europe so she's a huge motivation and she's very, very ambitious. So yeah we had this mentorship opportunities as well so yeah personal branding, mentorship, so many things, oh I got to meet other software developers from *company name* because I was going to all sorts I was invited to speak erm to this *placement company name* event for girls in computing and erm I would go there as an intern but among the panel there were other female software engineers and this gave me an incredible opportunity to up to them and be like "hey I'm an intern at *placement company name* erm I do this I'm working on this project and everybody was super friendly and erm helpful.

KS: So, did you find it was very male dominated because you seem really pleased for the opportunity to meet another woman?

REGINA: Erm especially in the *company name* department we were only 4 women out of 50 developers, so yeah were just a few

KS: And do you think that had any impact on the way you experienced it or?

REGINA: erm not really, I mean erm, you could see that all of the activities were more targeted towards men, we had a games room which had a erm an x box and it only had Fifa or games like that that I wouldn't play or erm a foosball table and yeah you could feel it's a bit you could feel the male presence erm but erm I didn't mind that much about that

KS: You, kind of established relationships in Romania, do you intend to go back and work there or is your plan to stay in the UK now?

REGINA: Erm after I graduate I plan to work outside Romania not necessarily in the UK just outside Romania but I intend to come back at some point probably in 10 year's time I would go back, right now I wouldn't go back mainly because erm there aren't erm the same opportunities that I would get here in the Western bigger companies are here part of Europe even though *placement company name* is present in Romania the don't have any development positions they have technical support or sales or marketing so I wouldn't, it wouldn't be suitable for what I I'd look for in the job

KS: So, what got you into this area, with it being quite a male dominated area, what made you want to go into this kind of job?

REGINA: Yeah so erm back home when we go to high school we decide if we want to do something that's more oriented towards human sciences and literature and history or you can choose to do a high school that's focused on the real sciences biology, physics, mathematics and computer science and I chose the one with computer science because erm yeah it was considered to be the toughest erm profile you could choose and I always choose to go for the toughest and erm yeah erm during high school I really felt attracted to informatics we were doing C++ I really loved it and I knew this is what I want to do programme, erm so yeah I think during the second half of my high school I discovered web development, really liked it that's why I decided to initially apply for web technologies as opposed to computer science so I applied for web technologies but I discovered that the degree didn't quite cover everything that I quite wanted it to and it took me two years to finally decide in my final year to just switch to computing and do the final year and erm do the modules that I find more helpful.

KS: So, did you have to pick up any modules from prior years with that because with many degrees if you swapped from one to another you'd have to start from the beginning, is that ok to do did you not have to pick up any extra modules?

REGINA: Erm no it was ok for me I was lucky erm because there was erm there's only one degree that I find a bit more challenging but I'm doing ok erm it's the one in distributed systems where you have to have an advanced java knowledge and I only did C sharp during my placement I learned it on my own and then I did a bit of java in my second year because I went I did an extra module of java and erm I didn't quite have the advanced skills but still I told them I can manage it, but erm it took a bit of extra work to do compared to my other colleagues who were very, very I don't know comfortable working with java erm but I managed to get I guess in the first assignment I got a B+ which was still good

KS: So, I'm noticing a kind of pattern where any time there's an opportunity you seem to be taking it do you think that that's often the case that you kind of take whatever opportunity you can get to develop?

REGINA: Yeah definitely and after my placement I've become even more motivated to take opportunities because I was lucky to have a housemate she was also an intern at *placement company name* and that's how we found each other so we could share a house and erm she's a visual design student but for games she's really into games so she erm she was an intern there just as me but for the game studios she was incredibly motivated I've never seen anybody like her she just made me feel like oh my god I'm not doing enough for my personal development for myself and she always seemed like she's doing so many networking events erm going to conferences, scholarships she has an incredible C.V and experience and she's only 22 and erm I just felt so motivated by her that it really, she had a big influence on me that's why now I seize every opportunity I look for all sorts of conferences I can apply to

KS: Right ok so these conferences are they separately to university are they just something that you find yourself on your own?

REGINA: Yeah they could be a bit, they could be better advertised as part of uni, that's what I'm trying to do with the group for girls because for example I've been erm I've erm got a scholarship for a conference in the US and I've been there in October luckily for me one of the lecturers personally sent me an email to me and told me about this conference but he told me right before I started my

internship so I was like I don't have time for this now but I'll definitely apply for this next year so yeah in 2015 I applied for this scholarship, received it and was super lucky to go in October last year to this conference in the US which is the biggest conference for women in technology all the biggest company's go there like google, Microsoft, Facebook they have the biggest career fair I've ever seen and it's just an incredible opportunity to listen to huge keynote speakers and so on and I wish that many more girls would find out about this and go and apply because it's just life changing

KS: So how come they sent it just to you? Do you think it's because you stand out as one of the students where they think oh she'll really engage with that?

REGINA: Yeah I guess so because I've been actually struggling a lot to get more girls as you know interested in this club I guess it's quite I don't know I guess it's hard to get students engaged and I would love to be able to do that and go talk to them and tell them hey there's so many opportunities for you out there I can't even count the number of events and conferences for women in computing out there right now because it's a huge hype on this subject and you just have so many opportunities out there and I just feel the need to let them know about them because otherwise it's just gonna be like it was for me, some of the lecturers would only email me erm and it just isn't fair maybe other girls would like to go but erm there's this barrier of I don't know maybe they don't show enough interest so the lecturers think hey I don't think she will like to put the effort

KS: So, within the university, do you think are plenty of opportunities for you to seize or is it more stuff that's just external?

REGINA: Erm within the university erm not so much I mean I know especially this year there haven't been many events or things that I could get involved in, especially to develop myself or to put on my C.V. I think, I'm trying to think of some erm I know erm in other degrees like games they have some guest speakers because we receive the same emails erm but for the computing and web technologies part not so much I mean erm yeah talking about that girl my old housemate her university promoted all sorts of scholarships so for one semester she would go and study in Denmark things like that I just don't find

KS: Yeah that you don't really get here? Was it just her that you lived with then was there just the two of you together?

REGINA: No, we were three, there were three of us together we stayed with another girl she was also a software engineer but in the game studios

KS: Right and was that with *placement company name* too?

REGINA: Yeah

KS: So how did you all meet each other because I would have thought you would have to establish where you're staying long before you got on your placement and stuff so how does that work?

REGINA: Yeah so our placement started in July at the beginning of July and in May we had this welcome day where all the interns would come to the *placement company name* headquarters in *place name* erm and that's where we met so that's where we met and May is quite an ok period to start looking for accommodation in London so yeah that's how we met we decided hey let's stay together because erm most of the interns were based in *place name* that's where the headquarters are and the ones that erm were based in London were quite a few so that we so we had this funny rule that we should wear different t-shirts, different colours to see what are the

interns that are staying in London and who's staying in *place name* so we all had blue t-shirts so we could spot each other and we would go and talk to each other

KS: Oh, that's such a good idea, and then did you find that you could just go and go out after work and meet up with them or was it not that sort of social?

REGINA: Yeah, I mean we would erm while we stayed together erm we lived together we would do all sorts of things we would go to the cinema together go to all sorts of events together yeah it was actually a very good friendship we created erm due to the placement

KS: So how was it living in London for you because it's very different to *university location* isn't it and is that kind of your first experience of London because it's a big deal in itself isn't it

REGINA: It's an amazing city I fell in love with it erm not from the first time, first I found it so busy erm but slowly I just fell in love with it that's why that I knew that after I finish my undergraduate degree I had to move to London, erm it's a completely different world compared to *university location name* erm I found it so, so nice, I stayed in a very nice area I was lucky to find a house in a good, good area because it's so difficult to find accommodation in London erm my brother my older brother has been living in London for probably 4 or 5 years, so he was there we would meet in over weekends I had him there, he's also working as a consultant in London and he knows like he gave me a lot of advice about what to do where to go I just loved it I was erm I had friends coming over because they wanted to see erm to see London and of course I would provide free accommodation so it was amazing I was always busy hosting friends and it was just a great experience because you had so many there were so many things to do erm with the people from work we would meet over weekends sometime we would make barbeques erm it was really, really nice.

KS: That sounds lovely. So, I'm going to on now to comparing your experience of uni before placement with uni after placement. So, what was your overall impression of university, ignoring placement, how do you feel about it?

REGINA: Erm I feel that the university erm is still under development there's a lot of work to do, since I joined in my first year a lot of progress has been made it changed so much over the past 3 or 4 years erm I feel that it's very, very good at encouraging students to do a placement the placement unit is incredible they do, do a lot of work and put a lot of effort into making sure that you have the best you're very well prepared for what's out there they have this portal where you can see jobs and everything its basically out there you just have to go and try erm they do mock interview which was really useful as well erm overall I really liked a second thing that I really liked about the university was the fact that they helped me change my degree it was quite a difficult thing to ask for but it was possible to make it happen, also the lecturers have always provided me with support whenever I needed a recommendation a letter of reference or anything like that they would gladly help me out erm a few of the things that still have to be developed are probably the course content erm it should be a bit more relevant to what out there in the industry and erm a bit more challenging because some of the aspects were just very, very basic whereas I was talking to other interns at *placement name* during my placement and their lecture slides, the actual content and the coursework that they had to do is much more challenging so the bar needs to be raised a bit

KS: So what factors do you think impacted you most academically, what were the biggest influences on I'm guessing that you did very well through academia I'm getting that impression so what kind of things do you think have influenced in terms of how well you did at university?

REGINA: Erm like what were the things that helped me do well?

KS: Yeah or just in general yeah what do you think is the reason for your success at university?

REGINA: Mainly the fact that I had a very good background from high school especially in informatics but apart from that it's just the fact that I'm quite motivated I aim to get the highest grades I look for in the mark sheets I look for all the requirements to get an A or an A+ and I try and cover all of those it's probably just the way I look at things I'm very goal oriented kind of person and I like having erm successful results and erm that's what motivates my learning

KS: Yeah and I was going to ask has that changed since placement but we've already kind of established that since you met your housemate that that did change, but do you think other than your house mate do you think that actual placement and the things you did on placement and your experience of placement do you think that had any impact on the way you are in academia now?

REGINA: Yeah definitely erm during the placement I've met interns that are just so intelligent and so motivated and erm I was very sad to see that erm some of the colleagues that I had here at *university name* weren't like that so we couldn't talk about very erm I don't know big ideas and things like that it was much I found it much more easy for me to make friends during my placement with erm the other interns erm and what else was I about to say oh when I was at the conference in the US and I met all these incredible girls that were also scholars because we had some events only for scholars to meet each other and things like that erm I found again girls that are so smart so motivated and I felt like woah I know nothing compared to these girls they did so much so many things so far, in the US they do probably 3 or 4 internships during their undergraduate they do a lot of erm summer internships and erm I was a bit scared like hey I've only done one placement but then I told them it's for a year and they were surprised like "woah you do them for a year" and erm they really like that but on the other hand they get the experience of working for different companies so most of them already had so many internships at Facebook at Google erm and I was just overwhelmed by how motivated they were and how many things they'd accomplished at such a young age

KS: So, what would you rather do would you rather have one, one-year placement or like 4 summer internships, what do you think personally would be best for you?

REGINA: Erm personally erm this one year placement really helped me because during one year erm you get the chance to do erm a bigger project to be assigned to a bigger project like I was erm but over the summer it just takes you it actually takes you a month to get accustomed to all the internal tools and then you only have two months left to do something so obviously it's not going to be such a huge project because in two months you don't get the time to do something very big you probably just start something or you complete the project if it's not yours. I'm lucky because now after I finish my undergraduate I'm going to start a summer internship between my undergrad and Masters so I can practically say that I did a placement and a summer internship

KS: And how did you find that is that something that you've gone out and looked for on your own again?

REGINA: Yeah again I started looking for summer internships in London since the beginning of this year and erm yeah and I was lucky to be offered one in London at *company name* and erm yeah, I'm going to start on the first of June it's going to be throughout the whole summer I think I'm going to end probably mid-September right before I start my masters so yeah I've kept myself busy for an entire summer. You know I'm going to get the chance to experience a summer internship and actually compare the two

KS: And then you'll know for definite which one you prefer. So, the one you're going to your summer internship is that related to your old internship in the type of thing that you're doing, or have you gone for

REGINA: Erm yeah, it's basically a software engineer role again erm also in the front end team, I'm going to be working with different technologies, different languages but erm it's still very, very similar

KS: Is it the same kind of size of company because your other one was a really large company is it a big one again?

REGINA: Yeah *company name* is really large again it's a very, very big company erm in cloud computing and erm they're very well known, they've been around for 16 years which is not as long as *placement company name* but still they're huge

KS: So, do you think when you erm when you try to get a job in the future are you going to aim for the bigger departments not in terms of how well know they are but in terms of the size and how many people you're working with do you think you prefer that kind of bigger more social environment?

REGINA: Yeah what I discovered after doing my placement is that erm when you go to a larger company that's well known the people that they hire there are very smart and its very competitive its very tough to get a place there so I feel that I learned from this kind of people and I want to be surrounded by these kinds of people when you go you can just as well go to a smaller company but the chances of finding somebody really inspiring or a good mentor are just lower there are a lot of people even at *placement company name* who left the company just to start their own smaller business erm or work for a smaller company but erm the situations are rare most of them either stay at *placement company name or* or they go to another big company like Google or Facebook

KS: Did you have any kind of, I mean it seems that overwhelmingly it was such a positive experience for you I've not had anyone be so positive about their placement did you have any kind of negatives from it was there any part of it where you thought I wish they'd have changed this or this could have been better or

REGINA: Erm I don't know I'm just so excited about the experience I'm trying to think of a negative thing

KS: you don't have to if there's not a negative don't feel like you have to make one! So how well prepared do you feel you were for your placement

REGINA: Erm that's a good question I think I was half prepared for what I was expected to do there were things that erm I had to learn on my own, do some self-study and erm get, get up to speed with erm some of the concepts or the way things work erm but I mean they were expecting that all of the interns come unprepared for the job so they weren't that tough I never felt any pressure on my to do something I was lucky enough to have no deadlines I could work at my own pace I mean I had deadlines but they weren't very rigid if for example it took me two days longer to finish something no one would tell me anything or be angry at me for that erm so yeah I mean erm it involved a lot of adaptability to different situations and scenarios that I was completely unfamiliar with but erm that was just part of the job to face all of the challenges that were coming to you

KS: Yeah and how relevant do you feel the degree was to your placement

REGINA: Erm it was quite relevant especially because I was a front end developer and not a back end developer because for a back end role you definitely need a computer science degree but for a front end role the fact that my first two years focused on CSS java script and all sorts of front end technologies was quite useful especially one module that I had in my second year on usability that really helped me a lot with when we were testing the features and my project manager she was proposing different designs for the feature erm I could talk to her and let her know my opinion and it was all based on the knowledge I had from my usability module.

KS: And then when you've come back into university do you think you can bring a lot back to university like the stuff you did there, or does it translate over or

REGINA: Yeah there was a lot of transferable skills that I got erm being very organised erm because I didn't want to disappoint my team or my supervisor I was very organised and that was very good for my it is very good for my dissertation project and erm and actually just the overall programming approach I learned things that are considered to be good practice in industry that I'm going to remember for the rest of my life mainly because now I'm young so if I start learning things this way it's so much better erm to form best practices and my way of working

KS: So, would you advise other people to go on the placement and what advice would you give them

Appendix 15 - Analytic codes

Initial Codes	Merged Codes	Themes
<ul style="list-style-type: none"> • Heavy emphasis on theory in academia • Disengagement with de-contextualised knowledge • Opportunity to apply theory in practice • Developing an experiential frame of reference • Newfound appreciation of the value of theory 	Contextualising academic learning	Theme 1 - integrating learning
<ul style="list-style-type: none"> • (Lack of) awareness of existing capabilities • Limited practical experience • Scaffolding, encouraging, reassuring knowledge transfer attempts • Building on knowledge – forming an identity of competence • Uncertainty/self-belief gauging appropriateness of knowledge application • Legitimate peripherality in discovering where experience fits/does not fit • Using academic knowledge to produce meaning/contribute/belong • Successful knowledge application building self-efficacy • Gauging colleague responses to contributions • Shifting practice based on evidence of incongruence between past/present experience • The shifting nature of soft skills between contexts 	Drawing upon a history of experience	
<ul style="list-style-type: none"> • Renewed enthusiasm, passion for field • Productive attitude • Conflicting routines • Desire for development opportunities • Dissertation as a reflective & generative exercise • Industry competitions – bridging the gap • Well-rounded understandings 	Placement enabling academic participation	
<ul style="list-style-type: none"> • First introduction to the world of work • Developing professional etiquette • Authentic activity vs. pedagogy 	Generating unique insights	
<ul style="list-style-type: none"> • No idea what to expect • Formal inductions • Seeking out clarification • Introductory presentations • Assessing the social landscape: who does what? • Lack of training opportunities • 	Getting the lay of the land	Theme 2 Incorporation and Identity
<ul style="list-style-type: none"> • Shadowing • Scaffolded introductory tasks • Overlaps with placement student predecessor • Collaboration • Becoming acquainted with the community's repertoire of resources 	Learning the ropes	

<ul style="list-style-type: none"> • Seeking formal feedback • The importance of constructive – balanced feedback 	The value of feedback	
<ul style="list-style-type: none"> • The need to ask for assistance (implicit expectation) • The value of informal guidance • Overcoming inexperience anxiety • Legitimacy to make/learn from mistakes • Organic increase in responsibility – instilling confidence in colleagues • Genuine contributions – fulfilment • Access to authentic activity • Identifying progression opportunities 	Advancing contributions	
<ul style="list-style-type: none"> • Career direction • Career opportunities • Emerging professionalism - Self-belief, authenticity 	Shifting trajectories	
<ul style="list-style-type: none"> • Conveying value despite 'student' status • Access to opportunities to engage with other CoPs- build a holistic picture of industry practice • Accessing opportunities for mutual engagement • Impact of status on self-advocacy 	Access	Theme 3: Negotiating relationships - the dynamics of power
<ul style="list-style-type: none"> • Confrontations • The risk of being taken advantage of • Conveying self-assuredness • Conflicting values • Navigating hierarchys 	Power plays	
<ul style="list-style-type: none"> • Earning respect • Forming social connections/interpersonal relationships/networking – social capital 	Social capital	